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MICHIGAN HEALTH STATISTICS

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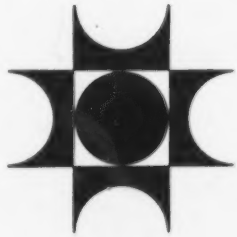

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Introduction

The 1977 edition of Michigan Health Statistics is a statistical summary of vital events for calendar year 1977. Data relative to population, births, deaths, fetal deaths, marriages, divorces and communicable diseases are included. Although most of the data in this report pertain to events occurring in 1977, some data for prior years have been included to illustrate trends. Most of the tabulations refer to Michigan residents. Some events, however, such as marriages and divorces are tabulated relating to where the event occurred rather than the residence status of the party or parties involved.

As a certain number of Michigan residents either deliver babies or die out of state each year, it is necessary to include data obtained from the certificates of other states in any residence tabulations pertaining to Michigan residents. This report includes all such out-of-state certificates received prior to March 15, 1978, and all in-state certificates and records received prior to March 15, 1978. Although a few records for calendar year 1977 were received after these filing dates, their exclusion from this report is statistically insignificant.

The 1970 edition of Michigan Health Statistics contained a complete section devoted to population characteristics. Similar data are not available for 1977 and thus the 1977 edition of Michigan Health Statistics does not have a section on population. The reader is referred to the 1970 edition for detailed population characteristics and to the reference appendix of this edition for county and state population estimates. More detailed population data are available in the Bureau of Management and Budget publication "Population Projections" and in the U.S. Census Bureau P-26 series.

The report is composed of the following sections and appendices:

1. Natality Section, 2. Mortality Section, 3. Marriage and Divorce Section, 4. Reference Appendix.

Any comments or suggestions concerning the content and format of this report are always welcome. Any additional needs for data or analyses may be directed to the Office of Vital and Health Statistics. A summary of prepared vital statistics tabulations, *Index to Michigan Vital Statistics 1960 to Present,* is also available. This index lists the type of tabulations and data available. The Office will make every attempt to comply with requests for data within the limitation of staff and resources.

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Technical Notes, Definitions, Rates and Ratios

Definitions

BIRTH WEIGHT—Weight of fetus or infant at time of delivery (normally recorded in pounds and ounces).

FETAL DEATH—Death prior to the complete expulsion or extraction from its mother of a product of conception, having passed through at least the 20th week of gestation; the fetus shows no signs of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. (Note: This includes both spontaneous and induced terminations.)

FIRST BIRTH—A live birth where the maternal medical history indicates there were no prior live births to the mother.

GESTATIONAL PERIOD—Number of weeks elapsed between the first day of the last menstral period and date of delivery.

HEBDOMADAL DEATH—Death occurring to an individual less than 7 days of age.

INFANT DEATH—Death occurring to an individual of less than 1 year of age.

INTERPREGNANCY TIME PERIOD—Birth date minus date of last termination, whether a live birth or fetal death, in months. Time periods of zero length are dropped to exclude 2nd or higher births of multiple deliveries.

LEADING CAUSES OF DEATH—Deaths are grouped into 111 categories dependent upon the underlying cause of death. Ranks are assigned by organizing these categories according to the number of deaths in each category from most frequent to least.

LIFE EXPECTANCY—A hypothetical calculation of the average age at death for a cohort of persons subject to the age-specific mortality rates observed over a given time period.

LIFE TABLE VALUES:

$_nq_x$ = The proportion of persons in the cohort alive at the beginning of an age interval (x) who will die before reaching the end of that age interval (x+n)

l_x = The number of persons living at the beginning of an age interval (x) out of an original cohort of 100,000

$_nd_x$ = The number of persons who would die during an age interval (x to x+n) out of an original cohort of 100,000

$_nL_x$ = The number of person-years that would be lived within an indicated age interval (x to x+n) out of an original cohort of 100,000 alive for all or part of the interval

T_x = The number of person-years that would be lived after the beginning of an age interval (x) by an original cohort of 100,000 until all are assumed to have died

$\mathring{e}_x$ = The average remaining lifetime (in years) for an individual person who survives to the beginning of an indicated age interval (x)

LIVE BIRTH—A live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.

LIVE-BIRTH ORDER—Order number is equal to number of previous live births plus current birth.

LOW-WEIGHT BIRTH—Birth wherein the birth weight is equivalent to 2,500 grams or less (approximately 5 lbs., 8 oz.).

MATERNAL DEATHS—Those deaths wherein the physician has designated a maternal condition as the underlying cause of death.

MEAN—The average of a set of values, equal to the sum of the values divided by the number of values.

MEDIAN—The central value of a distribution of values wherein the same percentage of observations are above this point as are below.

MINOR CIVIL DIVISION—City, Village or Township.

NEONATAL DEATH—Death occurring to individual less than 28 days of age.

OCCURRENCE—Place where the event actually occurred.

PERINATAL DEATH—Fetal death or death under 1 week of age.

PERINATE—Fetus or newborn during the perinatal period (from the end of the 20th week of gestation to the 7th day after birth).

PROBABILITY OF EVENTUALLY DYING FROM A GIVEN CAUSE OF DEATH—The chance of death due to a given cause rather than some competitive cause over the course of a lifetime based on current mortality data and life expectancy techniques.

RACE—Race for mother, father, or decedent is as stated on certificate. Race of child is determined from the race of the parents. Nonwhite includes all noncaucasian races.

REMAINING YEARS OF LIFE—A hypothetical calculation of the average number of years a cohort of persons will live given that they have reached a specific age and assuming they are subject to the age-specific mortality rates observed over a given time period.

RESIDENCE—Usual place of residence for person to whom event occurred. For births and fetal deaths residence is defined as the mother's usual place of residence.

TOTAL BIRTHS—Live Births and Fetal Deaths.

UNDERLYING CAUSE OF DEATH—That condition giving rise to the chain of events leading to death.

Rates and Ratios

AGE-SPECIFIC BIRTH RATE = No. of Resident Live Births for a Specific Age of Mother divided by Total Female Population of Specific Age × 1,000

AGE-SPECIFIC DEATH RATE = No. of Deaths in Specific Age Group divided by Total Resident Population in Specific Age Group × 100,000

AGE-SPECIFIC DEATH RATE BY CAUSE OF DEATH = No. of Deaths in Specific Age Group and From a Specific Cause divided by Total Resident Population in Specific Age Group × 100,000

AGE-SPECIFIC MARRIAGE RATE = No. of Marriages in Specific Age Group by Sex divided by Total Resident Population in Specific Age and Sex Group × 1,000

CAUSE-SPECIFIC RATE = No. of Deaths due to a Specific Cause divided by Total Resident Population × 100,000

COMMUNICABLE DISEASE CASE RATE = No. of Reported Cases (Specific Communicable Diseases) divided by Total Resident Population × 100,000

CRUDE BIRTH RATE = No. of Resident Live Births divided by Total Resident Population × 1,000

CRUDE DEATH RATE = No. of Resident Deaths divided by Total Resident Population × 1,000

DIVORCE RATE = No. of Persons (Divorces and Annulments) divided by Total Resident Population × 1,000

FERTILITY RATE = No. of Resident Live Births divided by Total Female Population (Ages 15-44) × 1,000

FETAL DEATH RATE = No. of Resident Fetal Deaths divided by Total Resident Live Births and Resident Fetal Deaths × 1,000

FETAL DEATH RATIO = No. of Resident Fetal Deaths divided by Total Resident Live Births × 1,000

FIRST MARRIAGE RATE = No. of Marriages to Persons not Previously Married by Sex divided by Total Resident Population by Sex × 1,000

INFANT MORTALITY RATE = No. of Infant Deaths divided by Total Resident Live Births × 1,000

LOW-WEIGHT BIRTH RATIO = No. of Low-Weight Births divided by Total Resident Live Births × 1,000

MARRIAGE RATE = No. of Persons Married divided by Total Resident Population × 1,000

MATERNAL DEATH RATE = No. of Maternal Deaths divided by Total Resident Live Births × 10,000

NEONATAL DEATH RATE = No. of Neonatal Deaths divided by Total Resident Live Births × 1,000

NO PRENATAL CARE RATIO = No. of Live Births to Mothers With No Prenatal Care divided by Total Resident Live Births × 1,000

PERINATAL DEATH RATE = No. of Perinatal Deaths divided by Total Resident Live Births and Resident Fetal Deaths × 1,000

RATE OF NATURAL INCREASE = Total Resident Live Births divided by Total Resident Deaths

TOTAL FERTILITY RATE = Sum of (Age-Specific Birth Rates) × (Number of Years in Age Group) for each Age Group from ages 10-14 through 45-49 years

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RELIABILITY OF RATES—Care should be taken in drawing specific inferences from comparisons of rates for different areas or different periods of time. Rates based on a small number of events or for a small area tend to exhibit considerable variation from time period to time period or place to place. Excessive variation in rates not only negates their utility as estimators of the probability of an event occurring but also their usefulness for comparative purposes. Also, one should recognize the limitations of using unadjusted rates in attempting to attribute rate differences to particular factors. For example, one should not attempt to state that there was a significant difference in rates for two geographic areas for arteriosclerosis without first adjusting the rates to negate the effects of differing age distributions in the two areas. Many times there are simply not sufficient data available to adequately adjust rates for all possible compounding factors. For this reason, the reader should exercise diligence and caution while attempting to draw substantive conclusions when comparing vital statistics rates.

Qualifications and Limitations of Data and Calculations

UNDERREGISTRATION OF EVENTS

The underregistration of vital events in Michigan is considered to be a minimal problem particularly for births and deaths. Tests of registration completeness conducted in conjunction with the 1950 Census indicate that the registration of births was 98.5 percent complete, and that death registration was even more complete. The number of certificates received too late for inclusion in annual statistical files is insignificant when examining statewide patterns.

GEOGRAPHIC ALLOCATION

The allocation of events on a residence or occurrence basis is for the most part accurate and complete. However, allocations to minor civil divisions are subject to question in some instances. In those cases where the respondent completes the residence item with a mailing address, geographic allocation is sometimes undeterminable and the record receives an unknown minor civil division code.

FETAL DEATHS

Fetal deaths in Michigan include only those conceptions that have passed through 20 weeks gestation. Inadequacies in determining the gestational age of the fetus may account for some underreporting of fetal deaths.

COMPARABILITY IN CAUSE OF DEATH STATISTICS

The reader should bear in mind two major limitations in interpreting changes in cause-of-death statistics. Changes in nomenclature and the classification scheme (International Classification of Diseases) and changes in diagnostic practices may seriously affect the comparability of such statistics over time. The classification scheme (ICD) is modified approximately once every ten years to reflect changing medical opinion and practice. The reader is most accurate when comparing cause-of-death certificates which are coded via one revision of the International Classification of Diseases and utilizing the coding practices and procedures in effect at that time.

In order to compare cause-of-death statistics from one revision to the next it is necessary to apply a 'comparability ratio'. Such ratios are developed by comparing the number of deaths assigned to a certain condition or group of conditions under one revision to the number assigned under another revision of the ICD.

LIFE EXPECTANCY

The procedure used to obtain the Michigan life table values is called the iterative method. This is a method which has been developed by Professor Felix Moore of the Department of Biostatistics, School of Public Health, University of Michigan.

For the age group 0-1 the method utilizes the algorithm developed by Greville with no iteration. For all subsequent age groups the method of Greville (Keyfitz) is used with three iterations to improve the estimate of ${}_nd_x$ and ${}_nq_x$. An iteration procedure is also used for ${}_nl_x$ for age groups 75-80 and 80-85 where the accuracy of mortality information is a factor and for obtaining the separation factor for the age group 1-4.

NATALITY

SECTION I

Natality: An Overview 1977

TOTAL RESIDENT BIRTHS	139,704
TOTAL RESIDENT LIVE BIRTHS	138,416
RESIDENT LIVE BIRTHS PER DAY	379.2
TOTAL RESIDENT FETAL DEATHS	1,288
RESIDENT FETAL DEATHS PER DAY	3.5
CRUDE BIRTH RATE	15.2
FERTILITY RATE	71.1
FETAL DEATH RATIO	9.3
FIRST ORDER BIRTHS (PERCENT OF TOTAL LIVE BIRTHS)	40.9
MEDIAN BIRTH WEIGHT IN GRAMS (LIVE BIRTHS)	3,374
MEDIAN BIRTH WEIGHT IN GRAMS (FETAL DEATHS)	1,559
LOW-WEIGHT LIVE BIRTHS	9,923
LOW-WEIGHT BIRTH RATIO	71.7
MEDIAN AGE OF MOTHER (LIVE BIRTHS)	25
MEDIAN AGE OF MOTHER (FETAL DEATHS)	25
LIVE BIRTHS WITH CONGENITAL ANOMALIES	1,306
CONGENITAL ANOMALIES RATE	943.5
NO PRENATAL CARE RATIO	5.5
HOME BIRTHS	489
LIVE BORN SETS OF TWINS	1,306
LIVE BORN SETS OF TRIPLETS	16
LIVE BORN MULTIPLE BIRTHS OF FOUR OR MORE	1

Between 1900 and 1977 the number of total births, which included both live births and fetal deaths, occurring each year has varied considerably. The general trend has been increasing numbers of total births from 1900 through 1957 and declining numbers since that time. In 1900 there were 45,024 total births in Michigan. This figure dropped slightly to 44,722 in 1901 for the lowest total in this century. Total births increased through the teens and early twenties to a temporary plateau of just over 100,000 during the years 1924-1930. Natality declined from a total of 102,596 in 1930 to 83,258 in 1933. Then from 1933 to 1957, excluding the war years of 1944 and 1945 total births increased persistently to a century high peak of 211,642 in 1957. Since 1957 total births have dropped sharply to 139,704 in 1977 (Table 1.1).

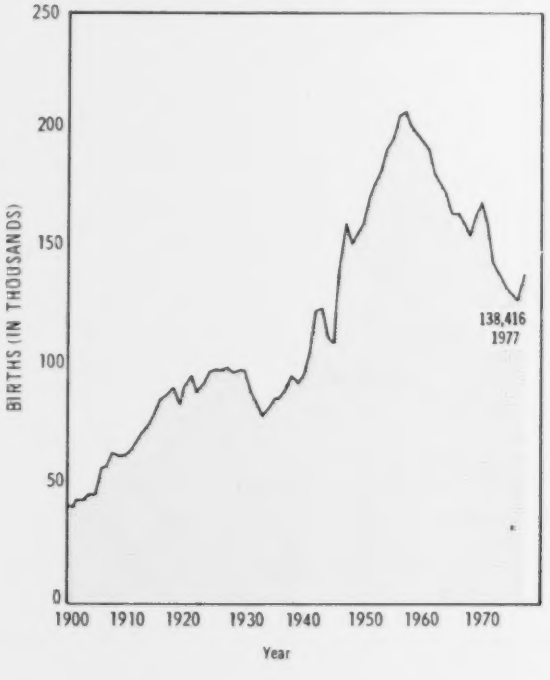
LIVE BIRTHS

Between 1900 and 1977, the number of live births occurring each year has varied considerably. The smallest number of live births recorded in this century was 43,221, which occurred in 1901. The greatest number was 208,488 in 1957. Figure 1.1 portrays the number of live births for Michigan from 1900 through 1977. Live births increased steadily and appreciably from 43,699 in 1900 to 208,488 in 1957, the peak year for this century. This is a 377 percent increase. Between 1957 and 1976, live births decreased by 37 percent to 131,378, the lowest total in 31 years. In 1977, live births increased to 138,416. This was the first increase in live births since 1970. The 5.4 percent increase in 1977 was the largest such increase since 1951.

TABLE 1.1—Total Births, Michigan Residents, Selected Years, 1900-1977

YEAR	TOTAL BIRTHS
1900	45,024
1901	44,722
1910	66,668
1920	96,015
1930	102,596
1933	83,258
1940	101,708
1950	163,150
1957	211,642
1960	198,064
1970	173,727
1971	164,167
1972	148,624
1973	143,320
1974	139,096
1975	135,304
1976	132,649
1977	139,704

FIGURE 1.1—Live Births, Michigan Residents, 1900-1977



The national pattern of live births has been similar to that observed in Michigan. Live births increased from an estimated 2,718,000 in 1909 to an estimated 4,300,000 in 1957. Since 1957, there has been a general decline in live births. The low point occurred in 1973 when live births in the United States totaled 3,136,965. In 1977 the national live birth total was 3,326,632, an increase of 5.0 percent over the 1976 figure. Note that United States figures also showed small increases in 1974 and 1976, while Michigan resident live births declined each year between 1970 and 1976 (Table 1.2).

TABLE 1.2—Live Births and Crude Birth Rates, Michigan and United States Residents, Selected Years, 1900-1977[1]

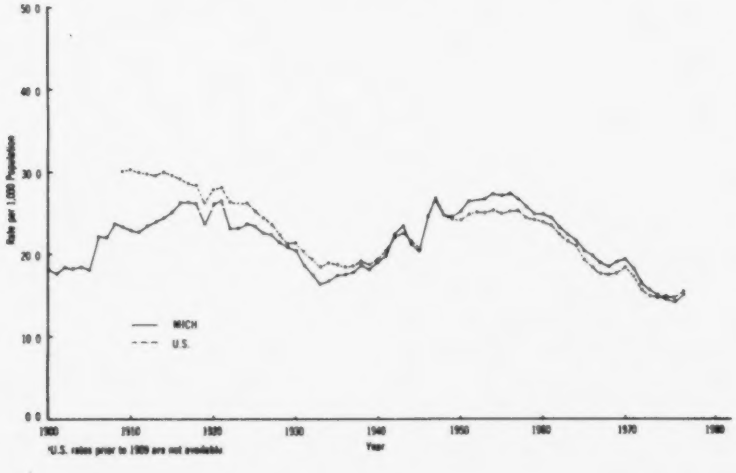
UNITED STATES			MICHIGAN	
LIVE BIRTHS	RATE	YEAR	LIVE BIRTHS	RATE
N/A	N/A	1900	43,699	18.1
2,777,000	30.1	1910	64,109	22.8
2,950,000	27.7	1920	92,245	25.1
2,618,000	21.3	1930	98,882	20.4
2,559,000	19.4	1940	99,106	18.9
3,632,000	24.1	1950	160,055	25.1
4,257,850	23.7	1960	195,056	24.9
4,268,326	23.3	1961	192,825	24.4
4,167,362	22.4	1962	182,790	23.0
4,098,020	21.7	1963	178,871	22.3
4,027,490	21.0	1964	175,103	21.6
3,760,358	19.4	1965	166,464	20.3
3,606,274	18.4	1966	165,794	19.9
3,520,959	17.8	1967	162,756	18.9
3,501,564	17.5	1968	159,058	18.3
3,600,206	17.8	1969	165,760	19.0
3,731,386	18.4	1970	171,667	19.3
3,555,970	17.2	1971	162,244	18.0
3,258,411	15.6	1972	146,854	16.3
3,136,965	14.9	1973	141,550	15.6
3,159,958	14.9	1974	137,414	15.1
3,144,198	14.8	1975	133,931	14.6
3,167,788	14.8	1976	131,378	14.4
3,326,632	15.4	1977	138,416	15.2

[1] United States Live Births before 1960 adjusted for under registration.

Another view of the historic pattern in live births may be obtained through examination of changes in the crude birth rate. By considering population size the historic pattern of live births is greatly stabilized (Figure 1.2). The crude birth rate in Michigan has ranged from a low of 14.4 in 1976 to a high of 27.4 in 1956. The crude birth rate in 1900 was 18.1. By 1916 the rate was 26.2. During the period 1917 to 1933 Michigan's crude birth rate declined steadily, reaching 16.2. The birth rate rose over the next 23 years to a peak in 1956 (27.4). Since 1956, Michigan's crude birth rate has been declining. In 1973, a century low rate was observed, replacing the 1933 rate as the lowest recorded for the state. The next three years, in succession, replaced the prior year figure as the lowest birth rate on record. In 1977, the crude birth rate increased to 15.2 from the 1976 low of 14.4. This was only the third time the crude birth rate has increased in the past 21 years. The 5.6 percent increase in the crude birth rate in 1977 was the largest percentage increase in this rate since 1947.

National statistics follow the same general pattern of rising and falling rates as has been observed in Michigan. The highest rate observed nationally over the period 1909 through 1977, was 30.0 in 1909, while the lowest was 14.8, occurring both in 1975 and 1976. United States live birth rates were above those observed in Michigan without exception from 1909 to 1941. Between 1942 and 1947, national rates were above those for the state two times. National birth rates were then below Michigan rates from 1948 through 1974. In 1975, 1976, and 1977, the United States rate has been just above that observed in Michigan (Table 1.2).

FIGURE 1.2—Live Birth Rates, Michigan Residents, 1900-1977, and United States Residents,[1] 1909-1977



[1] U.S. rates prior to 1909 are not available.

FERTILITY

The crude birth rates examined above are useful statistics for gauging the overall trends in live births for specific geographic areas. Where attempts are made to interpret such trends, however, crude birth rates can be misleading. These rates do not incorporate specifically the size of the population at risk. Should this population subset, generally considered to be women between the ages 15 through 44, not maintain a stable relationship with the total population, the crude rate may resultantly vary. A measure for analyzing changing birth patterns that is more exacting is the fertility rate. Since the fertility rate relates the number of live births to the female population of childbearing age, comparisons for various periods of time and various locations can be made with less regard for population structure.

A comparison of fertility rates for Michigan and the United States for selected years is presented in Table 1.3. Some interesting contrasts can be seen between fertility rates and the crude birth rates as presented in Table 1.2. In both the state and the country the crude birth rates dropped between the years 1950 and 1960 while the fertility rate rose between these two years. While Michigan's crude birth rate was below the United States rate in 1975, 1976, and 1977, the state's fertility rate was higher than the national rate.

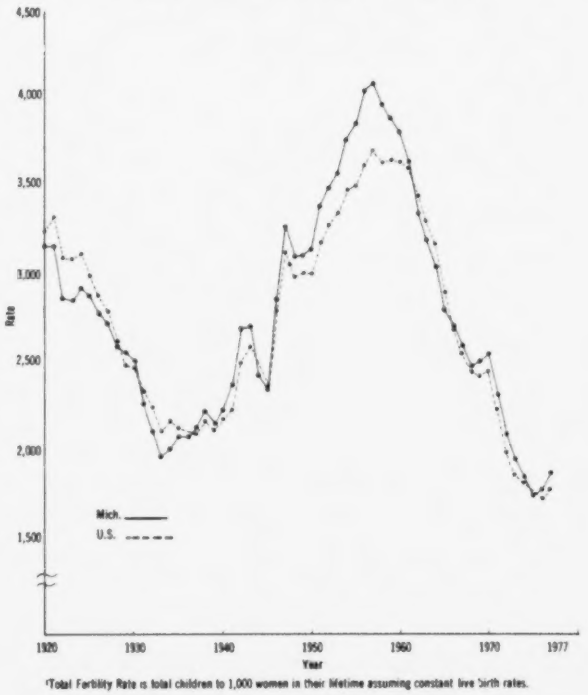
TABLE 1.3—Fertility Rates, Michigan and United States Residents, Selected Years, 1900-1977

FERTILITY RATE UNITED STATES	YEAR	FERTILITY RATE MICHIGAN
- - -	1900	78.5
126.8	1910	99.0
117.9	1920	111.6
89.2	1930	87.6
79.9	1940	78.9
106.2	1950	110.5
118.0	1960	123.1
117.2	1961	119.0
112.2	1962	110.8
108.5	1963	106.6
105.0	1964	102.6
96.6	1965	95.9
91.3	1966	94.0
87.6	1967	90.8
85.7	1968	87.3
86.5	1969	89.6
87.9	1970	91.7
81.8	1971	84.7
73.4	1972	76.5
69.2	1973	72.1
68.4	1974	70.0
66.7	1975	67.1
65.8	1976	68.7
67.8	1977	71.1

These differences point to the importance of the fertility rate in making comparisons and drawing conclusions. The crude birth rate changes observed understate the recent decline in fecundity for both regions. Since 1960 the crude birth rate in Michigan had dropped 39.0 percent, while the fertility rate in 1977 is 42.2 percent below the 1960 rate. For the United States over this same period the crude birth rate declined 35.0 percent and the fertility rate fell by 42.5 percent. The childbearing population has been increasing more rapidly than the total population over this 17 year period.

Figure 1.3 displays the changes in the total fertility rate between 1920 and 1977 for Michigan and the United States. The total fertility rate is a hypothetical measure of the number of live births that would occur to each 1,000 women during their reproductive life, if these women experienced the age specific birth rates observed in a given year. Michigan's total fertility rate has generally paralleled the national trend. The Michigan rate dropped from 3,195.5 in 1920 to 2,006.5 in 1933 and then increased between 1933 and 1957, reaching the peak of 4,100.0 in the latter year. Since 1957, the total fertility rate in Michigan has declined, reaching a low of 1,798.5 in 1975. This rate in 1977 was 1,906.0 for Michigan and 1,826.3 for the nation.

FIGURE 1.3—Total Fertility Rates,[1] Michigan and United States Residents, 1920-1977



[1]Total Fertility Rate = total children to 1,000 women in their lifetime assuming constant live birth rates.

Both Michigan and national total fertility rates have been below 2,000 since 1972. A total fertility rate of over 2,000 is necessary for replacement of the parents since not all women survive their reproductive years nor do all children survive to adulthood. If the total fertility rate falls below 2,000 for a long period, a natural decrease in population will eventually result.

TABLE 1.4—Live Births by Race, Michigan Residents, 1967-1977

YEAR	TOTAL BIRTHS		WHITE BIRTHS		ALL OTHER BIRTHS[1]	
	Number	% of all Births	Number	% of all Births	Number	% of all Births
1967	162,756	100.0	139,721	85.8	23,035	14.2
1968	159,058	100.0	135,436	85.1	23,622	14.9
1969	165,760	100.0	140,222	84.6	25,538	15.4
1970	171,667	100.0	143,871	83.8	27,796	16.2
1971	162,244	100.0	134,165	82.7	28,079	17.3
1972	146,854	100.0	119,788	81.6	27,066	18.4
1973	141,550	100.0	114,878	81.2	26,672	18.8
1974	137,414	100.0	112,474	81.9	24,940	18.1
1975	133,931	100.0	109,718	81.9	24,213	18.1
1976	131,378	100.0	107,907	82.1	23,471	17.9
1977	138,416	100.0	114,042	82.4	24,374	17.6

[1] All Other includes race not stated.

RACIAL COMPOSITION

During the period from 1967 through 1977, the racial composition of live births in Michigan was also changing. White births declined from 85.8 percent to 82.4 percent of all births between 1967 and 1977, while other than white births rose from 14.2 percent to 17.6 percent. The number of white births declined from 139,721 to 114,042 while other than white births increased from 23,035 to 24,374. Most of the 1967-1977 difference in birth totals by race stems from the more rapid decline of white births between 1970 and 1972. The number of white births dropped 16.7 percent between 1970 to 1972 while the number of births of all other races declined only 2.6 percent. In all but two of the past ten years, white and other than white birth totals have increased or decreased at the same time. In 1977 white births increased for the first time in six years. The increase was 5.7 percent; other than white births increased 3.9 percent in 1977 (Table 1.4).

Table 1.5 provides the racial composition of Michigan's live birth rate and fertility rate. In 1970 the crude birth rate for other than white persons was 44.6 percent above that for whites. By 1973, this percentage had increased to 64.1 percent. In 1974, this ratio dropped sharply to 48.3, and by 1977 it had fallen to 39.6. Declines in crude birth rates for both groups are evident over these seven years. The overall decline in crude rates since 1970 is nearly the same for both groups. The crude birth rate for whites in 1977 is 21.7 percent below that observed in 1970 while the rate displayed by the other than white group declined 24.4 percent over the same period. In 1977, the crude birth rate increased 5.9 percent for whites and 1.5 percent for all other races, the first increase in these rates in the 1970's.

TABLE 1.5—Crude Birth Rates and Fertility Rates by Race, Michigan Residents, 1970-1977

WHITE RACE		YEAR	ALL OTHER RACES[1]	
CRUDE BIRTH RATE	FERTILITY RATE		CRUDE BIRTH RATE	FERTILITY RATE
18.4	88.0	1970	26.6	117.6
17.0	80.5	1971	26.1	119.4
15.1	71.7	1972	24.6	112.4
14.5	68.5	1973	23.8	107.0
14.1	66.0	1974	21.7	96.5
13.8	63.4	1975	20.5	90.5
13.6	65.3	1976	19.9	89.2
14.4	68.0	1977	20.1	90.4

[1] All Other includes race not stated.

The fertility rates contained in Table 1.5 reveal that there are important differences in population structure between whites and other races. By comparing white and other than white live births to the respective numbers of women aged 15-44 for these two groups, the relative differences in rates are decreased. The fertility rate for races other than white was 33.6 percent above the rate for whites in 1970 and 32.9 percent higher in 1977. Since 1970 the other than white fertility rate has declined 23.1 percent compared with a 22.7 percent drop for whites. From 1976 to 1977, the fertility rate for whites rose by 4.6 percent, while the rate for races other than white rose 1.3 percent.

TABLE 1.6—Total Live Births and Percent Distribution by Age of Mother and Race of Child, Michigan Residents, 1977

AGE OF MOTHER	TOTAL		RACE OF CHILD					
			WHITE		ALL OTHER		NOT STATED	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Under 15 Years	426	0.3	147	0.1	279	1.2	—	—
15-19 Years	22,585	16.3	15,992	14.0	6,571	27.1	22	13.6
20-24 Years	49,740	35.9	41,191	36.1	8,496	35.1	53	32.7
25-29 Years	43,346	31.3	37,719	33.1	5,580	23.0	47	29.0
30-39 Years	21,471	15.5	18,328	16.1	3,107	12.8	36	22.2
40 Years and Over	822	0.6	649	0.6	172	0.7	1	0.6
Not Stated	26	0.0	16	0.0	7	0.0	3	1.9
Total	138,416	99.9	114,042	100.0	24,212	99.9	162	100.0
Median Age of Mother	25	000	25	000	23	000	25	000

AGE OF MOTHER

In 1977, 52.6 percent of all live births were to mothers less than 25 years of age. Only 0.6 percent occurred to women 40 or more years of age. The median age of the mothers was 25 years. Mothers of other than white infants were younger (median 23 years) than mothers of white children. Approximately 63 percent of the other than white infants were born to mothers aged 24 or less compared to 50 percent of the white infants. This differential is the result of the large percentage of other than white live births to mothers at ages 15-19 (Table 1.6).

AGE-SPECIFIC LIVE BIRTH RATES

As shown in Table 1.7, a substantial reduction has occurred over the last eleven years in the age-specific birth rates for Michigan females across all age groups. The greatest decrease in birth rates between 1967 and 1977 was for women over 34 years of age. Birth rates for women under 25 and for women 30-34 also declined more rapidly than did the birth rate for women of all ages. The decline in the birth rate for women 25-29 years old was only 7.3 percent, the smallest decrease observed for any age interval.

In 1967, women aged 20-24 had the highest birth rate of any age group, 30.4 percent higher than women aged 25-29. The relatively slow decline of the birth rate of women in the 25-29 age group in the past decade has progressively reduced the differential between the birth rate of women in the 20-24 and 25-29 age groups. In 1977, the birth rate of women in the 25-29 age group was 2.4 percent higher than that of women aged 20-24. This was the first time that women aged 25-29 had the highest birth rate, since these rates have been computed (1919-77). [See Table 4.4.]

TABLE 1.7—Age-Specific Live Birth Rates, Michigan Residents, 1967 and 1977

AGE GROUP	LIVE BIRTHS		BIRTH RATE		% Change in Birth Rate[4]
	1967	1977	1967	1977	
Under 20[1] Years	27,583	23,011	69.8	48.5	(30.5)
20-24 Years	61,541	49,740	182.8	127.4	(30.3)
25-29 Years	40,052	43,346	140.8	130.5	(7.3)
30-34 Years	19,840	17,293	77.6	52.8	(32.0)
35-39 Years	10,479	4,178	41.2	17.6	(57.3)
40 and Over[2]	3,237	822	12.2	4.5	(63.1)
Not Stated	24	26	000	000	000
Total[3]	162,756	138,416	90.8	71.1	(21.7)

[1] Age-Specific Birth Rates for Under 20 Based on Female Population 15-19.
[2] Age-Specific Birth Rates for 40 and Over Based on Female Population 40-44.
[3] Total Birth Rate (Fertility Rate) Based on Female Population 15-44.
[4] Parenthesis ( ) indicate a decline.

Table 1.8 displays age-specific live birth rates for white women and women of all other races in the years 1970 and 1977. Generally rates for other than white women were above those for white women. The exception to this is the age group 25-29. In both 1970 and 1977 the other than white live birth rate for women in this age group was slightly below that for white women. Live birth rates declined significantly over these seven years across all ages for both racial categories. The rates for white women have declined

TABLE 1.8—Age Specific Live Birth Rates by Race, Michigan Residents, 1970 and 1977

AGE GROUP	RACE					
	WHITE			ALL OTHER[1]		
	1970	1977	% Change in Rate	1970	1977	% Change in Rate
Under 20[2] Years	56.9	40.2	(29.3)	154.3	93.3	(39.5)
20-24 Years	172.9	123.2	(28.7)	198.1	152.5	(23.0)
25-29 Years	156.0	131.0	(16.0)	141.1	127.1	(9.9)
30-34 Years	75.6	52.4	(30.7)	80.5	55.1	(31.6)
35-39 Years	31.2	16.6	(46.8)	41.1	24.5	(40.4)
40 and Over[3]	8.1	4.0	(50.6)	13.0	8.1	(37.7)
Total[4]	88.0	68.0	(22.7)	117.6	90.4	(23.1)

[1] All Other includes race not stated.
[2] Age-Specific Birth Rates for Under 20 Based on Female Population 15-19.
[3] Age-Specific Birth Rates for 40 and Over Based on Female Population 40-44.
[4] Total Birth Rate (Fertility Rate) Based on Female Population 15-44.

more steeply than those for women of other races for all age groups, except the under 20 age group and the 30-34 age group. The under 20 age group decline for white women was 29.3 percent compared to 39.5 percent for women of all other races. The greatest decline observed was 50.6 percent for white females aged 40 years and over, while the smallest percentage change was the 9.9 percent drop for other than white females aged 25-29.

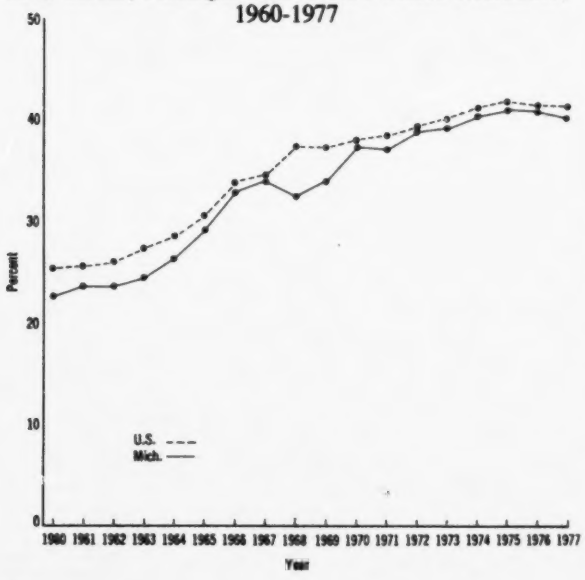
BIRTH ORDER

The relative distribution of Michigan resident live births by live birth order is displayed in Table 1.9. There has been a considerable shift of this distribution in recent years. First births comprised 34.0 percent of all live births in 1967 and 40.9 percent in 1977. The proportion of second order live births also increased. On the other hand, third and higher live birth orders were 40.5 percent of all live births in 1967, but only 25.5 percent in 1977. The greatest relative decline occurred in fifth order or greater live births. Fifth order or greater births constituted 14.5 percent of all live births in 1967 compared to 4.1 percent of 1977 live births.

TABLE 1.9—Total Live Births by Live Birth Order Michigan Residents, 1967 and 1977

LIVE BIRTH ORDER	NO. OF BIRTHS		PERCENT	
	1967	1977	1967	1977
First Birth	55,409	56,622	34.0	40.9
Second Birth	41,278	44,355	25.4	32.0
Third Birth	26,348	21,558	16.2	15.6
Fourth Birth	15,956	8,007	9.8	5.8
Fifth Birth or Greater	23,680	5,678	14.5	4.1
Not Stated	85	2,196	0.1	1.6
Total	162,756	138,416	100.0	100.0

FIGURE 1.4—First Births as a Percentage of All Live Births, Michigan and United States Residents, 1960-1977



The proportion of live births which are first order births has been increasing nationally as well as in Michigan. Between 1960 and 1975, the proportion of first order births increased from 22.9 percent to 41.3 percent in Michigan and from 25.6 percent to 42.0 percent nationally. Both the national and Michigan proportions have dropped slightly since 1975 (Figure 1.4). The total number of first births has declined since 1970 in both Michigan and the United States (Table 1.10).

TABLE 1.10—First Births, Michigan and United States Residents, 1967-1977

UNITED STATES		YEAR	MICHIGAN	
FIRST BIRTHS	% OF ALL BIRTHS		FIRST BIRTHS	% OF ALL BIRTHS
1,228,274	34.9	1967	55,409	34.0
1,311,460	37.5	1968	52,147	32.8
1,353,278	37.6	1969	56,497	34.1
1,430,680	38.3	1970	64,222	37.4
1,375,668	38.7	1971	60,413	37.2
1,289,257	39.6	1972	57,477	39.1
1,243,358	39.6	1973	57,411	40.6
1,314,194	41.6	1974	56,233	40.9
1,319,126	42.0	1975	55,348	41.3
1,324,811	41.8	1976	54,003	41.1
1,387,143	41.7	1977	56,622	40.9

The distribution of births by birth order and mother's age is displayed in Tables 1.11 and 1.12 for 1970 and 1977. The median ages of mothers having their first child increased from 21 to 22 between 1970 and 1977. For mothers having their second child, the median age increased from 24 to 25.

The proportion of all first births occurring after the mother was 25 years old, increased from 17.8 percent to 27.6 percent between 1970 and 1977. Second births occurring after age 25 increased from 38.3 percent to 49.9 percent. This change in mother's age at birth is reflective of the emergence in 1977 of the 25-29 age group as the group with the highest age-specific birth rate (Table 1.7).

INTERPREGNANCY TIME PERIOD

Paralleling the decreasing birth rates and shifting birth order distribution, there has been a lengthening of the time period between pregnancies to women having live births. In 1970, 50 percent of all live births to women with prior terminations were reported as being spaced 2 years and 7 months apart or longer. The median value in 1977 was 2 years and 9 months, 6.5 percent greater than in 1970 (Table 1.13). The relative percentages of birth spacings of less than one year and 1 to 2 years have declined over this period. The effect of a lengthened interval between terminations is a shortrun reduction in live births. Long range decreases in fertility can only result from a sustained decrease in the average number of children born per woman through her lifetime.

TABLE 1.11—Total Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1970

LIVE BIRTH ORDER	AGE OF MOTHER							
	UNDER 20 YEARS	20-24 YEARS	25-29 YEARS	30-39 YEARS	40 & OVER YEARS	NOT STATED	TOTAL	MEDIAN AGE
First Birth	24,061	29,099	9,017	1,918	119	8	64,222	21
Second Birth	5,221	23,776	13,918	3,817	142	1	46,875	24
Third Birth	813	9,267	12,261	5,551	227	—	28,119	27
Fourth Birth	119	2,623	6,400	5,407	324	2	14,875	29
Fifth Birth or Greater	13	1,060	4,634	10,188	1,527	1	17,424	33
Not Stated	26	67	32	26	2	—	153	24
TOTAL	30,253	65,892	46,262	26,907	2,341	12	171,667	24

TABLE 1.12—Total Live Births by Live Birth Order and Age of Mother, Michigan Residents, 1977

LIVE BIRTH ORDER	AGE OF MOTHER							
	UNDER 20 YEARS	20-24 YEARS	25-29 YEARS	30-39 YEARS	40 & OVER YEARS	NOT STATED	TOTAL	MEDIAN AGE
First Birth	17,921	23,052	12,575	3,008	60	6	56,622	22
Second Birth	3,994	18,230	16,231	5,822	75	3	44,355	25
Third Birth	565	5,957	9,344	5,580	110	2	21,558	27
Fourth Birth	56	1,399	3,169	3,274	108	1	8,007	29
Fifth Birth or Greater	11	348	1,430	3,433	456	—	5,678	33
Not Stated	464	754	597	354	13	14	2,196	24
TOTAL	23,011	49,740	43,346	21,471	822	26	138,416	25

In 1977, women having live births whose prior termination was a fetal death[1] had a median time span of 1 year and 9 months between their previous termination and a live birth in 1977 (Table 1.14). This compares to a median of 2 years 11 months for prior live births. The modal time span for women with prior fetal deaths is 1 to 2 years while that for prior live births is 3 to 5 years. The greatest comparative difference is associated with time spans of less than one year. This spacing was experienced by 13.0 percent of all women reporting their most recent prior pregnancy was a fetal death. This compares to 1.5 percent of all women reporting their most recent prior pregnancy was a live birth.

TABLE 1.13—Live Births to Mothers Reporting Previous Pregnancy Terminations by Time Span Between Last and Current Termination, Michigan Residents, 1970 and 1977

TIME SPAN IN YEARS	1970		1977	
	NUMBER	PERCENT	NUMBER	PERCENT
Total	108,516	100.0	82,445	100.1
Less than One	3,960	3.6	2,600	3.2
1 < 2	34,715	32.0	23,542	28.6
2 < 3	26,589	24.5	20,184	24.5
3 < 5	25,784	23.8	20,615	25.0
5 or More	17,468	16.1	15,504	18.8
Median Time Span	2 yrs. 7 mos.	000	2 yrs. 9 mos.	000

TABLE 1.14—Live Births to Mothers Reporting Previous Pregnancy Terminations by Time Span Between Last and Current Termination and Whether Termination Was a Live Birth or Fetal Death,[1] Michigan Residents, 1977

TIME SPAN IN YEARS	LIVE BIRTHS		PRIOR FETAL DEATHS		PRIOR LIVE BIRTHS	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
TOTAL	82,445	100.1	11,655	99.9	70,790	99.9
Less than One	2,600	3.2	1,515	13.0	1,085	1.5
1 < 2	23,542	28.6	5,646	48.4	17,896	25.3
2 < 3	20,184	24.5	2,099	18.0	18,085	25.5
3 < 5	20,615	25.0	1,505	12.9	19,110	27.0
5 or More	15,504	18.8	890	7.6	14,614	20.6
Median Time Span	2 yrs. 9 mos.	000	1 yr. 9 mos.	000	2 yrs. 11 mos.	000

[1] Fetal death, as defined for the pregnancy history on the birth record, is a fetal death of any gestational age.

TABLE 1.15—Live Births by Month Prenatal Care Began and Number of Prenatal Visits, Michigan Residents, 1977

MONTH CARE BEGAN	TOTAL	NUMBER OF VISITS						
		NONE	UNDER 5	5-9	10-14	15-19	20 AND OVER	UNKNOWN
TOTAL	138,416	768	7,041	37,814	73,853	11,158	2,340	5,442
No Care	768	768	—	—	—	—	—	—
1st Month	12,879	—	147	1,600	7,689	2,361	603	479
2nd Month	51,514	—	524	9,198	33,752	5,894	997	1,139
3rd Month	39,015	—	828	11,347	23,417	2,193	468	762
4th Month	15,252	—	942	7,231	6,189	455	144	291
5th Month	7,720	—	1,137	4,397	1,779	143	71	193
6th Month	4,102	—	1,063	2,289	587	48	25	90
7th Month	2,511	—	1,053	1,203	170	12	11	62
8th Month	1,307	—	861	380	31	2	4	29
9th Month	484	—	380	46	19	1	2	36
Unknown	2,864	—	96	123	220	49	15	2,361

PRENATAL CARE

For 51,514 mothers delivering live born infants in 1977, prenatal care was initiated in the second month of pregnancy. This is about 37 percent of all women having live births. The most common number of prenatal visits was within the interval 10-14 (53.4 percent of all live births). Table 1.15 shows the relationship between the month of pregnancy prenatal care begins and the number of prenatal visits. Where care begins in the first trimester, the mode for the number of visits is 10-14 while the mode for care beginning in the eighth or ninth month is under five visits.

A total of 103,408 women (74.7 percent) having live births started their prenatal care prior to the fourth month of pregnancy in 1977. This is about the same as the 74.6 percent figure recorded in 1976. The percentage of women receiving care prior to the fourth month has increased since 1970, when the figure was 69.0 percent (Figure 1.5).

There were also small, but steady increases in the proportion of women receiving care prior to the sixth month of pregnancy over the period 1970-1975. In 1970, 86.0 percent of women delivering live born infants received care prior to the sixth month of pregnancy. By 1975, this percentage had risen to 91.6. The percentage in 1977 was 91.3.

The time prenatal care began varied somewhat with live birth order (Table 1.16). The percentage of women who began care during the first trimester was highest for second order live births (78.4 percent) and lowest for fifth or greater births (62.3 percent).

FIGURE 1.5—Percent of Women Having Live Births Who Received Care Prior to the 4th Month and the 6th Month of Pregnancy, Michigan Residents, 1970-1977

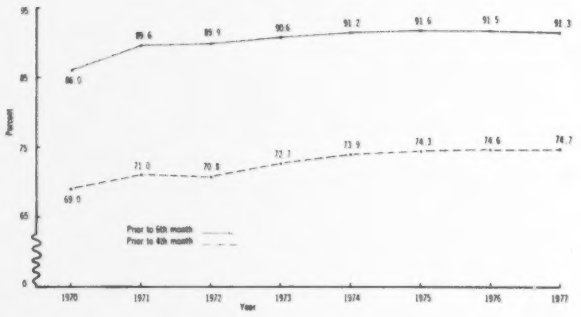


Table 1.16—Total Live Births by Month of Pregnancy Prenatal Care Began and Live Birth Order, Michigan Residents,1977

MONTH OF PREGNANCY CARE BEGAN	TOTAL	LIVE BIRTH ORDER					
		1ST	2ND	3RD	4TH	5TH OR GREATER	NOT STATED
TOTAL	138,416	56,622	44,355	21,558	8,007	5,678	2,196
No Care	768	278	175	141	73	78	23
1st Month	12,879	5,271	4,298	1,978	681	444	207
2nd Month	51,514	20,840	17,758	7,976	2,706	1,547	687
3rd Month	39,015	15,596	12,734	6,376	2,291	1,545	473
4th Month	15,252	6,426	4,405	2,367	1,037	805	212
5th Month	7,720	3,505	1,982	1,135	488	461	149
6th Month	4,102	1,862	1,059	557	262	283	79
7th Month	2,511	1,121	648	351	151	180	60
8th Month	1,307	528	343	188	88	113	47
9th Month	484	207	113	70	40	43	11
Not Stated	2,864	988	840	419	190	179	248
Percentage Beginning Care In First Trimester	74.7	73.7	78.4	75.7	71.0	62.3	62.2

TABLE 1.17—Live Births With No Prenatal Care by Age of Mother and Race of Child, Michigan Residents, 1977

AGE OF MOTHER	TOTAL		RACE OF CHILD					
			WHITE		ALL OTHER		NOT STATED	
	No.	Ratio	No.	Ratio	No.	Ratio	No.	Ratio
Under 15 Years	19	44.6	9	61.2	10	35.8	—	000
15-19 Years	269	11.9	168	10.5	101	15.4	—	000
20-24 Years	244	4.9	150	3.6	94	11.1	—	000
25-29 Years	130	3.0	85	2.3	45	8.1	—	000
30-39 Years	95	4.4	62	3.4	33	10.6	—	000
40 Years and Over	11	13.4	7	10.8	4	23.3	—	000
Total	768	5.5	481	4.2	287	11.9	—	000
Median Age of Mother	22	000	22	000	22	000	000	000
Total Live Births	138,416	000	114,042	000	24,212	000	162	000

TABLE 1.18—Live Births by Prenatal Visits and Race, Michigan Residents, 1977

PRENATAL VISITS	TOTAL		RACE OF CHILD					
			WHITE		ALL OTHER		NOT STATED	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
None	768	0.6	481	0.4	287	1.2	—	—
1-4	7,035	5.1	4,348	3.8	2,687	11.1	5	3.1
5-9	37,812	27.3	29,893	26.2	7,908	32.7	11	6.8
10-14	73,843	53.3	64,821	56.8	9,002	37.2	20	12.3
15-19	11,157	8.1	9,445	8.3	1,707	7.1	5	3.1
20 and Over	2,340	1.7	1,807	1.6	533	2.2	—	—
Not Stated	5,461	3.9	3,247	2.9	2,093	8.6	121	74.7
Total	138,416	100.0	114,042	100.0	24,212	100.1	162	100.0
Median Number of Visits	11	000	12	000	10	000	*	000

The proportion of mothers having ten or more prenatal visits was 63.1 percent in 1977. This proportion has remained fairly constant in the past four years, ranging from a low of 62.7 percent to a high of 64.4 percent. White mothers were much more likely to have ten or more prenatal visits in 1977. While 66.7 percent of white mothers had at least ten prenatal visits, only 46.4 percent of mothers of other races had that many visits (Table 1.18).

In 1977, 768 resident live births or 5.5 of every 1,000 live births occurred without the mother having had any prenatal care. These include only those where no prenatal care was specified. The comparative statistic in 1976 was 7.0 and in 1971 was 11.8. Those who received no prenatal care are for the most part younger mothers (median age of 22). Also, the lack of prenatal care is disproportionately high among other than white mothers. The relative percentage of other than white mothers receiving no prenatal care in 1977 was 2.8 times as large as that for white mothers (Table 1.17).

BIRTH WEIGHT

The mean weight for all live births was 3,340 grams or approximately 7 pounds 6 ounces. The median weight was 3,374 or about 7 pounds 7 ounces (Table 1.19).

TABLE 1.19—Live Births by Birth Weight and Race, Michigan Residents, 1977

WEIGHT AT BIRTH	TOTAL	RACE		
		WHITE	ALL OTHER	NOT STATED
500 Grams or Less	188	125	63	—
501–1,000 Grams	630	401	228	1
1,001–1,500 Grams	926	576	349	1
1,501–2,000 Grams	1,955	1,314	639	2
2,001–2,500 Grams	6,224	4,324	1,895	5
2,501–3,000 Grams	22,835	16,668	6,138	29
3,001–3,500 Grams	50,482	41,255	9,185	42
3,501–4,000 Grams	39,648	35,048	4,564	36
4,001–4,500 Grams	12,658	11,703	936	19
4,501 Grams and Over	2,783	2,585	196	2
Not Stated	87	43	19	25
Total	138,416	114,042	24,212	162
Mean Weight	3,340	3,392	3,091	3,359
Median Weight	3,374	3,402	3,147	3,374

TABLE 1.20—Low Weight[1] Live Births and Ratio by Age of Mother and Race of Child, Michigan Residents, 1977

AGE OF MOTHER	TOTAL		RACE OF CHILD					
			WHITE		ALL OTHER		NOT STATED	
	No.	Ratio	No.	Ratio	No.	Ratio	No.	Ratio
Under 15 Years	71	166.7	17	115.6	54	193.5	—	000
15-19 Years	2,162	95.7	1,206	75.4	954	145.2	2	000
20-24 Years	3,480	70.0	2,395	58.1	1,084	127.6	1	000
25-29 Years	2,685	61.9	2,005	53.2	676	121.1	4	000
30-39 Years	1,454	67.7	1,075	58.7	377	121.3	2	000
40 Years and Over	70	85.2	41	63.2	29	168.6	—	000
Not Stated	1	*	1	*	—	000	—	000
Total	9,923	71.7	6,740	59.1	3,174	131.1	9	000
Median Age of Mother	24	000	25	000	23	000	*	000

[1] 2,500 grams or less.

TABLE 1.21—Low Weight Live Births and Ratios by Prenatal Visits and Race of Child, Michigan Residents, 1977

NUMBER OF PRENATAL VISITS	TOTAL		RACE OF CHILD					
			WHITE		ALL OTHER		NOT STATED	
	No.	Ratio	No.	Ratio	No.	Ratio	No.	Ratio
None	192	250.0	90	187.1	102	355.4	—	000
1-4	1,528	217.2	877	201.7	650	242.4	1	000
5-9	3,804	100.6	2,706	90.5	1,098	138.8	—	000
10-14	3,165	42.9	2,398	37.0	767	85.2	—	000
15-19	445	39.9	301	32.8	133	77.9	1	000
20 and Over	125	53.4	81	44.8	44	82.6	—	000
Not Stated	664	121.6	287	88.4	370	176.8	7	000
Total	9,923	71.7	6,740	59.1	3,174	131.1	9	000
Median Number of Visits	9	000	9	000	8	000	*	000

A subgroup of major importance when analyzing birth weight trends is the infant weighing 2,500 grams or less (approximately 5 pounds 8 ounces or less) at birth. Such infants have historically experienced higher mortality rates in their first year than those born with greater weights. In 1977, approximately 72 of every 1,000 live births were at or below 2,500 grams (Table 1.20).

The proportion of low birth weight infants varies with the race of the child, the age of the mother, and the amount of prenatal care she has received. Note that these three factors are interrelated. (Very young mothers and mothers who are not white have fewer prenatal visits; women whose race is not white have higher birth rates in the younger age groups, etc.). Tables 1.20 and 1.21 present data on these three variables with respect to birth weight.

The age group with the highest low birth weight ratio (166.7) was mothers under 15 years of age. The ratio declined through ages 25-29 to a low of 61.9, then climbed through the older age groups to 85.2 for mothers 40 years and older (Table 1.20).

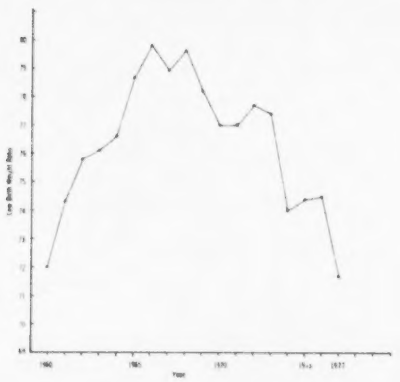
The low birth weight ratio was highest when the mother had no prenatal care (250.0). The ratio declined as the number of prenatal visits increased through 15-19 visits, where the ratio was 39.9. The low birth weight ratio increased to 53.4 for the category of 20 or more prenatal visits. It is likely that a very high number of prenatal visits is associated with problems in the pregnancy (Table 1.21). It should also be noted that low birth weight infants are more likely to be born prematurely, reducing the possible number of prenatal visits.

Other than white infants have a lower mean and median birth weight than white infants (Table 1.19). The low birth weight ratio for other than white infants is 131.1 compared with 59.1 for white infants. Other than white infants and white infants showed similar patterns of rising and falling ratios varying with changes in the age of the mother and frequency of prenatal visits. The other than white low birth weight ratio varied from a high of 355.4 where the mother had no care to a low of 77.9 where the mother had 15-19 visits. The ratio for white infants varied from a high of 201.7 where the mother had 1-4 prenatal visits to a low of 32.8 where the mother had 15-19 prenatal visits (Table 1.21). Overall, the low birth weight ratio for other than white infants was 2.2 times the same

ratio for white infants. This high differential is associated with a differential in the proportion of mothers having had fewer than 10 prenatal visits. While 30.5 percent of mothers having white infants had less than 10 prenatal visits, the corresponding figure for mothers having other than white infants was 44.9 percent (Table 1.18).

Figure 1.6 displays the low birth weight ratio for Michigan over the period 1960 through 1977. An examination of this graph reveals that this ratio had varied considerably over the time period examined. The ratio in 1960 was 72.0. Over the next five years, this statistic rose rapidly, reaching 79.8 in 1966, whereupon it stabilized through 1968. The ratio declined from 79.6 in 1968 to 77.0 in 1970, held stable through 1973 (77.4), then dropped in 1974 to 74.0. Between 1974 and 1976 the ratio rose slightly. In 1977, the ratio dropped to 71.7.

FIGURE 1.6—Low Birth Weight Ratio, Michigan Residents, 1960-1977



ATTENDANT AT BIRTH

Data in Table 1.22 reveals that 99.7 percent of the live births were attended by a physician, either an M.D. or D.O. There were 36 live births attended by midwives, while husbands delivered 158 infants in 1977. There were 50 resident births for which no attendant at delivery was reported on the birth record.

TABLE 1.22—Live Births by Type of Attendant, Michigan Residents, 1977

ATTENDANT	NUMBER	PERCENT
Total	138,416	100.0
Physician, M.D.	116,611	84.2
Physician, D.O.	21,441	15.5
Registered Nurse	7	0.0
Physician's Assistant	11	0.0
Midwife	36	0.0
Husband	158	0.1
Other Attendant	85	0.1
No Attendant	50	0.0
Unknown	17	0.0

CONGENITAL ANOMALIES

One of more congenital anomalies were reported for 1,306 of the 138,416 resident live births in 1977 (Table 1.23). This translates to a rate of 943.5 per 100,000 live births. Congenital anomalies of the limbs (other than clubfoot) was the most frequently reported category, occurring at a rate of 284.6 per 100,000 live births and comprising 30.2 percent of all anomalies mentioned. The frequency of reporting specific anomalies is affected by the reporting cycle. Many conditions may or may not be apparent at birth, when the birth certificate is completed.

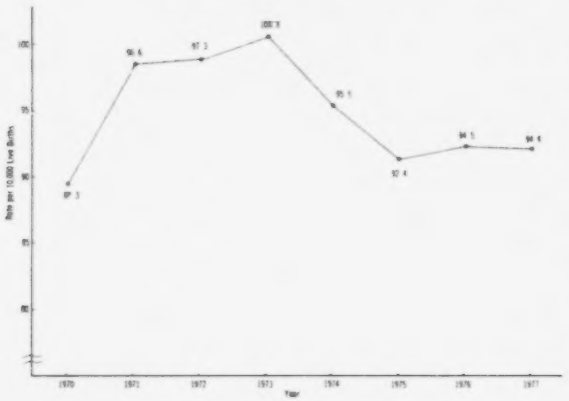
TABLE 1.23—Congenital Anomalies[1] Reported By Types of Anomaly, Michigan Residents, 1977

Type of Anomaly	ICDA No.	Number of Conditions	Rate per 100,000 Live Births
Other Congenital Anomalies of Limbs	755	394	284.6
Clubfoot (Congenital)	754	171	123.5
Congenital Anomalies of Genital Organs	752	160	115.6
Cleft Palate and Cleft Lip	749	132	95.4
Congenital Syndromes Affecting Multiple Systems	759	101	73.0
Congenital Anomalies of Heart	746	70	50.6
Congenital Anomalies of Skin, Hair and Nails	757	55	39.7
Spina Bifida	741	52	37.6
Congenital Anomalies of Ear, Face and Neck	745	52	37.6
Other Congenital Anomalies of Musculoskeletal System	756	38	27.5
Other Congenital Anomalies of Digestive System	751	35	25.3
Congenital Hydrocephalus	742	34	24.6
Other and Unspecified Congenital Anomalies	758	34	24.6
Other Congenital Anomalies of Upper Alimentory Tract	750	30	21.7
Anencephalus	740	27	19.5
Other Congenital Anomalies of Circulatory System	747	23	16.6
Congenital Anomalies of Urinary System	753	19	13.7
Other Congenital Anomalies of Nervous System	743	18	13.0
Congenital Anomalies of Eye	744	14	10.1
Congenital Anomalies of Respiratory System	748	12	8.7
At Least One Anomaly[2]		1,306	943.5

[1] Indicates anomalies apparent soon after a live birth.
[2] Does not equal the sum of anomalies specified because of the occurrence of multiple anomalies.

Figure 1.7 displays the incidence of congenital anomalies reported for Michigan resident live births over the period 1970-1977. This incidence rose from 88.3 in 1970 to 100.8 in 1973, and then declined somewhat over the last four years. The incidence in 1977 was 6.3 percent below the 1973 figure.

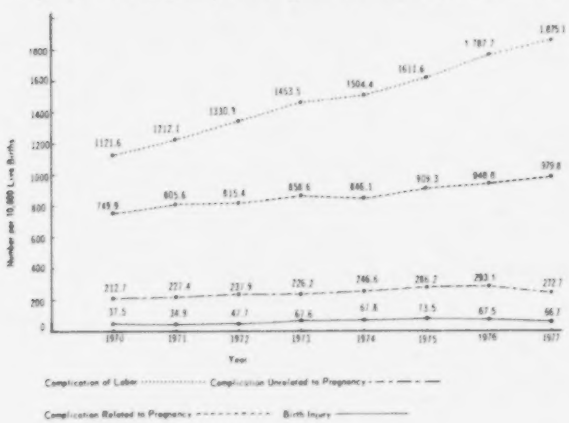
FIGURE 1.7—Incidence of Congenital Anomalies Reported per 10,000 Live Births, Michigan Residents, 1970-1977



COMPLICATIONS OF PREGNANCY AND LABOR

The frequencies of complications reported on birth certificates have increased during the 1970's in all four categories of complications (Figure 1.8). "Complications Unrelated to Pregnancy" includes conditions of the mother that are not related to the pregnancy, but can contribute to a difficult pregnancy. In 1970, physicians reported 212.7 such complications for every 10,000 live births; in 1977, the rate was 272.7. Reported "Complications Related to Pregnancy", or conditions associated with the pregnancy itself, has risen from 749.9 per 10,000 live births in 1970 to a rate of 979.8 in 1977. This rate increased by 3.3 percent between 1976 and 1977. "Birth Injury" reporting has increased since 1970. In that year there were 37.5 reported occurrences per 10,000 live births. This rate rose 96 percent to 73.5 in 1975. The 1977 rate of 66.7 represents a 9.1 percent decline from 1975. The most frequently reported problem of pregnancy and labor is "Complications of Labor" or problems that arise during labor and delivery. In 1977, such complications were reported for about 19 percent of all live births, (a rate of 1,875.1). This is 67.2 percent greater than in 1970 (1,121.6) and 4.9 percent greater than in 1976. It is important to note when reviewing changes in these rates that these items are under-reported on birth certificates. Increases can be a reflection of better reporting and/or actual increases in incidence.

FIGURE 1.8—Incidence Rates for Any Complication Related to Pregnancy, Any Complication Unrelated to Pregnancy, Any Complication of Labor, and Any Birth Injury, per 10,000 Live Births, Michigan Residents, 1970-1977



PLACE OF OCCURRENCE

A source of some confusion to persons not familiar with vital records data is the difference between occurrence and resident figures. Information on events to residents of Michigan that occur throughout the country and, in some instances, outside its boundaries is collected in order to obtain the full scope of activity for the state population. Of the total 138,416 resident live births, 1,878 occurred outside the state. Information on these events is forwarded to the State of Michigan for statistical purposes only. While only 1.4 percent of the total for the state is involved, statistics for the counties on Michigan's southern most and northwestern borders would be strongly affected were this information not available.

Table 1.24 shows the four major geographic areas where resident live births occur. These four border areas comprise 90.3 percent of all resident events that occurred out of state. Resident births occurred in 36 of the 50 states in 1977.

The number of nonresident live births that occurred in Michigan in 1977 was 602. Information about those events was shared with the appropriate states by the State of Michigan under specific confidentiality guidelines, so that they might have a complete statistical file on their residents. The border areas comprised 74.8 percent of these events, as

TABLE 1.24—Live Births Occurring Outside the Mother's State of Residence by State of Occurrence, Michigan Occurrences and Residents, 1977

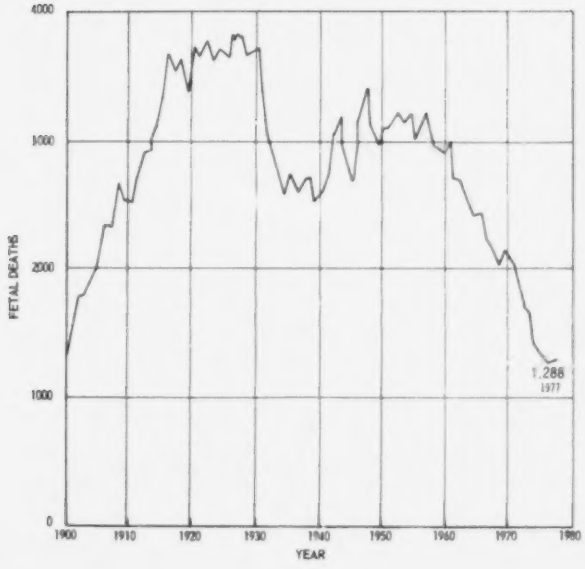
Geographic Area	Live Births To Residents Occurring Outside Michigan		Live Births To Nonresidents Occurring In Michigan	
	Number	Percent	Number	Percent
Total	1,878	99.9	602	100.0
Indiana	657	35.0	144	23.9
Ohio	596	31.7	94	15.6
Wisconsin	346	18.4	199	33.1
Canada	96	5.1	13	2.2
Other Areas	183	9.7	152	25.2

shown in Table 1.24. There were live births in Michigan to residents from 31 states and at least four foreign countries.

FETAL DEATHS

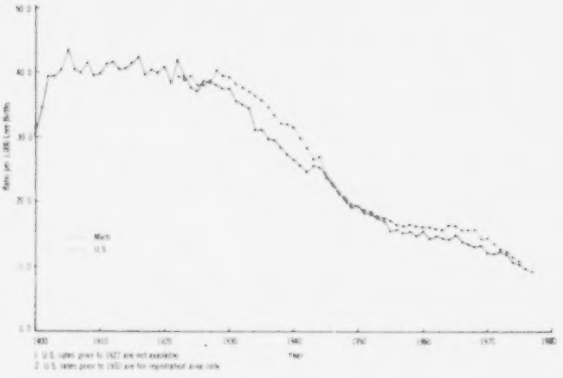
There were 1,325 fetal deaths in 1900. The number of fetal deaths rose from 1900 through 1916. In 1916 there were 3,689 fetal deaths recorded (Figure 1.9). The numbers of such deaths were relatively stable from 1916 through 1930, with the peak year for the period being 1927. This was also the highest frequency in this century with 3,834 fetal deaths. Over the period 1930 through 1939, fetal deaths declined in frequency, reaching 2,572. Occurrences then increased through 1943, decreased in 1944 and 1945, and increased again to a peak of 3,422 in 1947. Fetal deaths numbered between 3,000 and 3,250 in the period 1948 to 1958. In the 60's and 70's fetal deaths decreased. By 1976, the number of fetal deaths fell to 1,271, the lowest number reported in this century. The previous low frequency was in 1900 (1,325). In 1977, there were 1,288 fetal deaths reported.

FIGURE 1.9—Fetal Deaths, Michigan Residents, 1900-1977



The fetal death ratio for Michigan, which relates fetal death figures to live births, has been declining at varying rates through most of the twentieth century (Figure 1.10). The ratio rose from 30.3 in 1900 to 43.5 in 1905. Through the teens and early twenties, this ratio fluctuated between 38 and 42 but never reaching the peak ratio observed in 1905. In 1922, Michigan's fetal death ratio was 42.0. This year marks a turning point, as fetal death ratios have been generally declining ever since. The low ratio of 1900 was first succeeded as the lowest ratio observed in 1936 (29.7).

FIGURE 1.10—Fetal Death Ratios, Michigan Residents, 1900-1977, and United States Residents, 1922-1973



Over the next 40 years, new lows have been established repeatedly, as the fetal death ratio for Michigan continued to decline. The ratio in 1977 was 9.3, the lowest rate observed in this century.

National fetal death data are presented in Figure 1.9 and Table 1.25. Michigan's fetal death ratio has generally been below national ratios. In fact, the United States ratio has been below that for Michigan in only six of the 52 years for which national data are available. The last time the United States ratio was below the Michigan ratio was in 1947. In 1975, the Michigan ratio was 3.7 percent below the national ratio of 10.7. It should be noted that fetal deaths in Michigan are comprised of still-births that have passed through 20 weeks gestation. This definition is different from that of some states.

TABLE 1.25—Fetal Deaths and Fetal Death Ratios, Michigan and United States Residents, 1900-1977

UNITED STATES		YEAR	MICHIGAN	
FETAL DEATHS[1]	FETAL DEATH RATIOS[1]		FETAL DEATHS	FETAL DEATH RATIOS
—	—	1900	1,325	30.3
—	—	1910	2,559	39.9
70,010[2]	39.4	1920	3,770	40.9
86,466	39.2	1930	3,714	37.6
73,802	31.3	1940	2,602	26.3
68,261	19.2	1950	3,095	19.3
68,480	16.1	1960	3,008	15.4
52,961	14.2	1970	2,060	12.0
47,818	13.4	1971	1,923	11.9
41,380	12.7	1972	1,770	12.1
38,309	12.2	1973	1,682	11.9
36,281	11.5	1974	1,451	10.6
33,796	10.7	1975	1,373	10.3
—	—	1976	1,271	9.7
—	—	1977	1,288	9.3

[1] After 1944, includes only deaths of twenty or more weeks gestation.
[2] Data for 1922.

CAUSES OF FETAL DEATH

A classification of fetal deaths by underlying cause of death is contained in Table 1.26. Due to a relatively large number of deaths allocated to unspecified causes, the reader should exercise caution in attempting to draw specific inferences regarding cause of death among fetal deaths.

In 1977, 238 of the total 1,288 fetal deaths were due to unknown causes. Of the remainder, nearly half (45.6 percent) were attributed to one of two general conditions. Conditions of the placenta, which would include such things as placental insufficiency, placenta previa, premature separation of the placenta, and abnormalities of the placenta caused 261 fetal deaths. There were 189 fetal deaths due to conditions of the placenta for every 100,000 live births in 1977. Second in prevalence was conditions of the umbilical cord, causing 218 fetal deaths.

TABLE 1.26—Fetal Deaths by Cause of Death (Underlying) and Cause-Specific Ratios, Michigan Residents, 1977

ICDA LIST NO.	CAUSE OF DEATH	FREQUENCY	RATIO[1]
740	Anencephalus	33	23.8
741	Spina Bifida	3	2.2
742	Congenital Hydrocephalus	11	7.9
743	Other Congenital Anomalies of the Nervous System	2	1.4
745	Congenital Anomalies of Ear, Face, and Neck	1	0.7
746	Congenital Anomalies of the Heart	3	2.2
747	Other Congenital Anomalies of Circulatory System	1	0.7
751	Other Congenital Anomalies of the Digestive System	2	1.4
752	Congenital Anomalies of Genital Organs	1	0.7
753	Confenital Anomalies of the Urinary System	3	2.2
755	Other Congenital Anomalies of Limbs	1	0.7
756	Other Congenital Anomalies of Musculoskeletal System	1	0.7
758	Other and Unspecified Congenital Anomalies	2	1.4
759	Congenital Syndromes Affecting Multiple Systems	27	19.5
760	Chronic Circulatory and Genito-Urinary Diseases in Mother	5	3.6
761	Other Maternal Conditions Unrelated to Pregnancy	59	42.6
762	Toxemia of Pregnancy	68	49.1
763	Maternal Ante and Intra-Partum Infection	32	23.1
764	Difficult Labor with Abnormality of Bone, Organs, or Tissue of Pelvix	1	0.7
765	Difficult Labor with Disproportion but no Mention of Abnormality of Pelvic	4	2.9
766	Difficult Labor with Malposition of Fetus	7	5.1
767	Difficult Labor with Abnormality of Forces of Labor	2	1.4
768	Difficult Labor with Other and Unspecified Complications	3	2.2
769	Other Complications of Pregnancy and Childbirth	109	78.7
770	Conditions of Placenta	261	188.6
771	Conditions of Umbilical Cord	218	157.5
772	Birth Injury without Mention of Cause	4	2.9
773	Termination of Pregnancy	2	1.4
775	Hemolytic Disease of Newborn without Mention of Kernicterus	11	7.9
776	Anoxic and Hypoxic Conditions not Elsewhere Classifiable	88	63.6
777	Immaturity, Unqualified	67	48.4
778	Other Conditions of Fetus or Newborn	18	13.0
779	Fetal Death of Unknown Cause	238	171.9

[1] Ratios per 100,000 resident live births.

AGE OF MOTHER AND RACE OF FETUS

The overall fetal death rate per 1,000 total births (live births plus fetal deaths) was 9.2 in 1977. The rate associated with white fetuses was 7.7, while the fetal death rate for other races was 88.3 percent higher at 14.5. An association of maternal age with fetal death rate is apparent from Table 1.27. The 20-24 and 25-29 year age groups displayed the lowest rates. Progressively older and younger age groups displayed increasingly higher rates. The largest differential between the rates for whites and that for all other races occurred in the 30-39 age group, where the rate for the other than white group is 130.6 percent higher.

TABLE 1.27—Fetal Deaths, Live Births, and Fetal Death Rates by Age of Mother and Race of Fetus, Michigan Residents, 1977

AGE OF MOTHER AND RACE OF FETUS	FETAL DEATHS	LIVE BIRTHS	TOTAL BIRTHS	RATE PER 1,000 TOTAL BIRTHS
Under 15 Years	6	426	432	13.9
White	3	147	150	*
All Other	3	279	282	*
Not Stated	—	—	—	000
15-19 Years	250	22,585	22,835	10.9
White	145	15,992	16,137	9.0
All Other	98	6,571	6,669	14.7
Not Stated	7	22	29	000
20-24 Years	408	49,740	50,148	8.1
White	280	41,191	41,471	6.8
All Other	112	8,496	8,608	13.0
Not Stated	16	53	69	000
25-29 Years	353	43,346	43,699	8.1
White	271	37,719	37,990	7.1
All Other	75	5,580	5,655	13.3
Not Stated	7	47	54	000
30-39 Years	239	21,471	21,710	11.0
White	158	18,328	18,486	8.5
All Other	62	3,107	3,169	19.6
Not Stated	19	36	55	000
40 and Over	28	822	850	32.9
White	22	649	671	32.8
All Other	6	172	178	33.7
Not Stated	—	1	1	000
Not Stated	4	26	30	000
White	3	16	19	000
All Other	1	7	8	000
Not Stated	—	3	3	000
Total	1,288	138,416	139,704	9.2
White	882	114,042	114,924	7.7
All Other	357	24,212	24,569	14.5
Not Stated	49	162	211	000

The median age of women having fetal deaths was identical to the median age of women having live births in 1977 (Table 1.6 and Table 1.28). As suggested by the fetal death rates in Table 1.27, the distribution of fetal deaths and live births by mother's age are not identical. A greater percentage of fetal

TABLE 1.28—Fetal Deaths by Age of Mother and Race of Fetus, Michigan Residents, 1977

AGE GROUP	RACE OF FETUS							
	TOTAL	%	WHITE	%	ALL OTHER	%	NOT STATED	%
Under 15 Years	6	0.5	3	0.3	3	0.8	—	—
15-19 Years	250	19.4	145	16.4	98	27.5	7	14.3
20-24 Years	408	31.7	280	31.7	112	31.4	16	32.7
25-29 Years	353	27.4	271	30.7	75	21.0	7	14.3
30-34 Years	166	12.9	115	13.0	39	10.9	12	24.5
35-39 Years	73	5.7	43	4.9	23	6.4	7	14.3
40-44 Years	27	2.1	22	2.5	5	1.4	—	—
45 Years and Over	1	0.1	—	—	1	0.3	—	—
Not Stated	4	0.3	3	0.3	1	0.3	—	—
Total	1,288	100.1	882	99.8	357	100.0	49	100.1
Median Age	25	000	25	000	23	000	26	000

deaths occurred to women under 20 and over 30 than was the case with live births. Of all fetal deaths, 19.9 percent were to women under 20, compared to 16.6 percent of all live births. Similarly, 16.1 percent of all live births were to women 30 or more years of age while 20.7 percent of all fetal deaths occurred to women 30 years of age or older.

TABLE 1.29—Fetal Deaths and Live Births to Mothers Reporting Prior Pregnancy Terminations by Time Span Between Last and Current Termination, Michigan Residents, 1977

TIME SPAN IN YEARS	LIVE BIRTHS		FETAL DEATHS	
	NUMBER	PERCENT	NUMBER	PERCENT
Total	82,445	100.1	593	100.0
Less than One	2,600	3.2	40	6.7
1 < 2	23,542	28.6	156	26.3
2 < 3	20,184	24.5	105	17.7
3 < 5	20,615	25.0	128	21.6
5 or More	15,504	18.8	164	27.7
Median Time Span	2 yrs. 9 mos.	000	2 yrs. 11 mos.	000

INTERPREGNANCY TIME PERIOD AMONG FETAL DEATHS

Prior pregnancies were reported for 593 of the 1,288 resident fetal deaths or 46.0 percent of the women whose pregnancy terminated with a fetal death. This compares to 59.6 percent of all live births. For these women, the inter-pregnancy time periods reported on fetal death certificates in 1977 have a median length of 2 years and 11 months (Table 1.29). This is nearly the same as the median of 2 years 9 months for women having live births in 1977. Terminations resulting in fetal deaths were relatively frequent following less than a one year or five year or greater time span between terminations. The most frequent interval was 1 to 2 years paralleling the mode for live births.

Table 1.30 shows that, as with live births (Table 1.14), the outcome of the prior termination has a strong influence on the interval between pregnancies. Of the 593 women having prior terminations, 104 had a prior fetal death most recently with a median interval of 1 year and 9 months. The remaining 489 had a prior live birth most recently with a median interval of 3 years and 2 months.

TABLE 1.30—Fetal Deaths[1] to Mothers Reporting Previous Pregnancy Terminations by Time Span Between Last and Current Termination and Whether Termination Was a Live Birth or Fetal Death,[2] Michigan Residents, 1977

TIME SPAN IN YEARS	FETAL DEATHS[1]		PRIOR FETAL DEATHS[2]		PRIOR LIVE BIRTHS	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
TOTAL	593	100.0	104	99.9	489	100.0
Less than One	40	6.7	20	19.2	20	4.1
1 < 2	156	26.3	41	39.4	115	23.5
2 < 3	105	17.7	17	16.3	88	18.0
3 < 5	128	21.6	7	6.7	121	24.7
5 or More	164	27.7	19	18.3	145	29.7
Median Time Span	2 yrs. 11 mos.	000	1 yr. 9 mos.	000	3 yrs. 2 mos.	000

[1] Fetal deaths of twenty or more weeks gestation.
[2] Fetal deaths of any gestation.

PRENATAL CARE—FETAL DEATHS

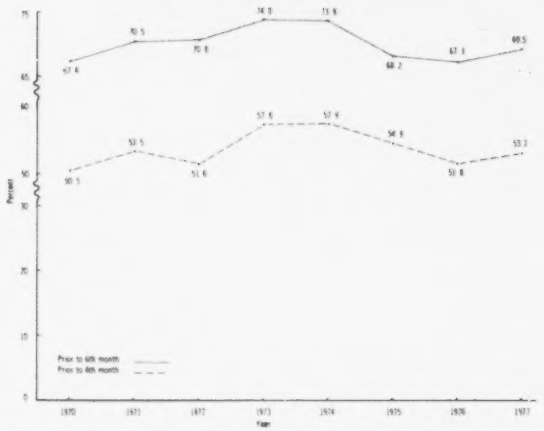
Of the 1,288 fetal deaths recorded for 1977, 48 or 3.7 percent of the records indicated that the mothers had no prenatal visits. The comparable percentage for live births was 0.6 percent. The proportion of mothers with fewer than ten prenatal visits was 48.8 percent for fetal deaths and 33.0 percent for live births (Table 1.18 and Table 1.31).

The fetal death rate varied with the number of prenatal visits. The rate was 58.8 for mothers with no care, 27.2 for mothers with 1-4 visits, and 10.0 for those with 5-9 visits. The fetal death rate is lowest for mothers with 10-14 visits (3.6), increasing to 4.9 and 7.6 for mothers with 15-19 and 20 and over visits, respectively.

Caution should be exercised in interpreting the above fetal rates and proportions. Incomplete reporting of the number of visits occurred on 24.6 percent of the fetal deaths certificates compared with 3.9 percent of the live births records. It should also be kept in mind that fetal deaths are much more likely to occur preterm and this affects the possible number of prenatal visits.

The month of pregnancy that prenatal care began was most frequently the second month (Table 1.31). Of those reporting, a large percentage (53.3 percent) had received care prior to the fourth month of pregnancy, with 69.5 percent receiving care prior to the sixth month. From 1970 through 1973 there was a general increase in the percentage of women having fetal deaths who received care prior to the fourth and sixth month. Since 1974, these percentages have declined (Figure 1.11).

FIGURE 1.11—Percent of Women Having Fetal Deaths who Received Care Prior to the 4th Month and the 6th Month of Pregnancy, Michigan Residents, 1970-1977



TOTAL 1.31—Fetal Deaths by Month Prenatal Care Began and by Number of Prenatal Visits, Michigan Residents, 1977

MONTH OF PREGNANCY PRENATAL CARE BEGAN	NUMBER OF VISITS							
	TOTAL	NONE	UNDER 5	5-9	10-14	15-19	20 AND OVER	NOT STATED
Total	1,288	48	197	383	270	55	18	317
No Care	48	48	—	—	—	—	—	—
1st Month	118	—	13	45	39	9	7	5
2nd Month	343	—	38	142	113	25	7	18
3rd Month	225	—	43	84	70	12	3	13
4th Month	135	—	38	61	27	5	1	3
5th Month	74	—	29	31	11	3	—	—
6th Month	35	—	18	11	6	—	—	—
7th Month	13	—	7	4	1	—	—	1
8th Month	6	—	4	1	—	1	—	—
9th Month	4	—	3	1	—	—	—	—
Unknown	287	—	4	3	3	—	—	277

BIRTH WEIGHT—FETAL DEATHS

Among live births, the percentage of infants weighing 5 pounds 8 ounces or less at birth was 7.2 percent. The comparable percentage among fetal deaths was 57.1 percent. The distribution of birth weight by plurality for fetal deaths is presented in Table 1.32. Note that twin and triplet deliveries are not sets, but are total occurrences and that any given set may have included live births. The percentage of single delivery births under 2,501 grams was 55.8 percent. The comparable percentage for twin deliveries was 72.4 percent.

TABLE 1.32—Fetal Deaths by Fetal Weight and Plurality, Michigan Residents, 1977

WEIGHT	FETAL DEATHS	CUM. %	SINGLE DELIVERY	TWIN DELIVERY	TRIPLET DELIVERY
500 Grams or Less	114	8.9	94	20	—
501-1,000 Grams	244	27.8	226	17	1
1,001-1,500 Grams	139	38.6	131	8	—
1,501-2,000 Grams	116	47.6	105	11	—
2,001-2,500 Grams	122	57.1	107	15	—
2,501-3,000 Grams	94	64.4	90	4	—
3,001-3,500 Grams	93	71.6	92	1	—
3,501-4,000 Grams	55	75.9	55	—	—
4,001-4,500 Grams	19	77.3	19	—	—
4,501-5,000 Grams	14	78.4	14	—	—
5,001 Grams and Over	11	79.3	10	—	—
Not Stated	267	100.0	246	21	—
Total	1,288	100.0	1,189	98	1

MORTALITY

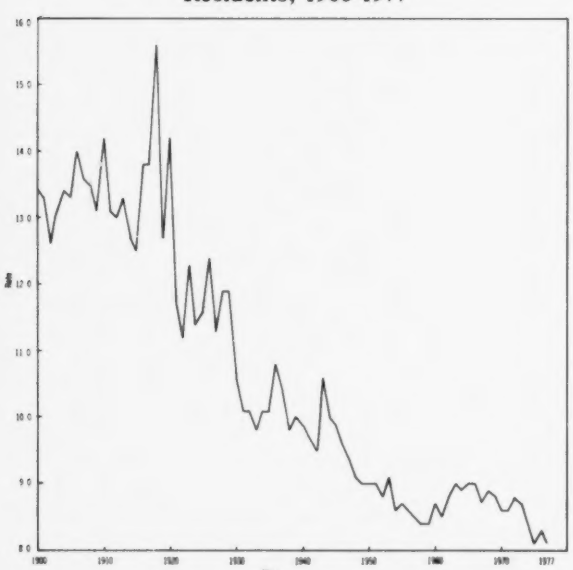
SECTION II

Mortality: An Overview 1977

RESIDENT DEATHS	74,144
CRUDE DEATH RATE	8.1
INFANT DEATHS	1,945
INFANT DEATH RATE	14.1
NEONATAL DEATHS	1,367
NEONATAL DEATH RATE	9.9
PERINATAL DEATHS	2,456
PERINATAL DEATH RATE	17.6
MATERNAL DEATHS	11
MATERNAL DEATH RATE	0.8
DEATHS FROM HEART DISEASE PER DAY	79.2
DEATHS FROM CANCER PER DAY	41.4
DEATHS FROM STROKE PER DAY	18.7
DEATHS FROM ACCIDENTS PER DAY	10.8
MEDIAN AGE AT DEATH	71 Years
MEDIAN AGE AT DEATH FOR MALES	68 Years
MEDIAN AGE AT DEATH FOR FEMALES	75 Years

Between 1900 and 1977 the number of deaths occurring to Michigan residents increased from 32,453 to 74,144. The 31,472 deaths recorded in 1902 was the lowest number of resident deaths in this century, while the greatest number was recorded in 1972 when total resident deaths numbered 79,210. Although the total number of deaths increased between 1900 and 1977, the crude death rate decreased from 13.4 (per 1,000 population in 1900) to 8.1 in 1977. The 1977 rate matched the previous low crude death rate recorded for Michigan in 1975. The highest death rate (15.6) was observed in 1918.

FIGURE 2.1—Crude Death Rate, Michigan Residents, 1900-1977



Heart, cancer, and stroke deaths numbered 2,836, 1,460, and 2,136 respectively in 1900, whereas in 1977 heart, cancer, and stroke deaths numbered 28,895, 15,125, and 6,818, respectively. Although there have been significant increases in the number of deaths from these causes, changes in death rates per 100,000 population have not been nearly so dramatic. Heart, cancer, and stroke cause-specific death rates in 1900 were 117.1, 60.3, and 88.2, respectively. Comparable figures for 1977 are 316.5, 165.7, and 74.7.

A comparison of deaths and crude death rates for Michigan and the United States for the period 1967-1977 is presented in Table 2.1. The Michigan rate has consistently been below the United States rate. Both Michigan and national rates were stable between 1967 and 1972 and declined moderately between 1972 and 1977.

TABLE 2.1—Number of Deaths and Crude Death Rates, Michigan and United States Residents, 1967-1977

UNITED STATES		YEAR	MICHIGAN	
NO.	RATE		NO.	RATE
1,851,323	9.4	1967	75,360	8.7
1,930,082	9.7	1968	76,855	8.9
1,921,990	9.5	1969	76,693	8.8
1,921,031	9.5	1970	76,321	8.6
1,927,542	9.3	1971	77,395	8.6
1,963,944	9.4	1972	79,210	8.8
1,973,003	9.4	1973	78,522	8.7
1,934,388	9.2	1974	76,143	8.4
1,892,879	8.9	1975	74,522	8.1
1,909,440	8.9	1976	75,801	8.3
1,898,000 Prov.	8.8 Prov.	1977	74,144	8.1

The stable pattern of deaths in the 60's and early 70's has often been attributed to the lack of change in the numbers of deaths in the major disease categories. The lower crude rates observed in 1974 and 1975 were the result of consecutive decreases in deaths from the major causes of death including heart disease and stroke. In 1976, there was a significant increase in deaths due to these causes. It should be noted that influenza and pneumonia deaths also rose in 1976 and that heart disease and stroke deaths tend to increase in the presence of high influenza case rates. In 1977, there was a decline in deaths due to most major causes, including heart disease, stroke, and influenza and pneumonia.

Of the 74,144 resident deaths that occurred in 1977, 41,633 occurred to males and 32,511 occurred to females. The median age at death for males was 68, compared to a significantly higher figure for females of 75. White deaths numbered 64,815 and accounted for 87.4 percent of all deaths. Deaths to other than white persons[1] numbered 9,329 (Table 2.2).

The greatest number of deaths occurred to persons 80-84 years of age and the least number to persons aged 5-9. The greatest number of deaths for other than white persons occurred to persons 65-69 years of age, while deaths to whites were most frequent at ages 80-84. Differences in the mode for age at death

[1]Other than white figures include race not stated.

TABLE 2.2—Number of Deaths by Age, Race, and Sex[1] Michigan Residents, 1977

AGE	ALL RACES			WHITE			ALL OTHER[2]		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1 Year	1,945	1,112	831	1,373	785	586	572	327	245
1-4 Years	350	190	160	259	134	125	91	56	35
5-9 Years	248	135	113	191	100	91	57	35	22
10-14 Years	315	213	102	262	175	87	53	38	15
15-19 Years	942	679	263	814	586	228	128	93	35
20-24 Years	1,099	837	262	835	640	195	264	197	67
25-29 Years	984	699	285	707	513	194	277	186	91
30-34 Years	872	583	289	598	387	211	274	196	78
35-39 Years	975	623	352	696	441	255	279	182	97
40-44 Years	1,377	843	534	1,024	620	404	353	223	130
45-49 Years	2,338	1,444	894	1,850	1,150	700	488	294	194
50-54 Years	3,816	2,460	1,356	3,092	2,008	1,084	724	452	272
55-59 Years	5,090	3,262	1,828	4,228	2,725	1,503	862	537	325
60-64 Years	6,743	4,417	2,326	5,826	3,852	1,974	917	565	352
65-69 Years	7,926	4,952	2,974	6,954	4,357	2,597	972	595	377
70-74 Years	8,982	5,388	3,594	8,065	4,862	3,203	917	526	391
75-79 Years	9,228	4,982	4,246	8,367	4,536	3,831	861	446	415
80-84 Years	9,427	4,445	4,982	8,837	4,172	4,665	590	273	317
85-89 Years	7,042	2,899	4,143	6,651	2,716	3,935	391	183	208
90 and Over	4,433	1,461	2,972	4,178	1,370	2,808	255	91	164
Not Stated	12	10	2	8	7	1	4	3	1
Total	74,144	41,634	32,508	64,815	36,136	28,677	9,329	5,498	3,831
Median Age	71	68	75	72	70	76	61	59	64

[1] Two white infants with sex not stated included in total columns but not reallocated.
[2] All Other includes race not stated.

are also evident in relation to sex. The most frequent age group at death was 70-74 for white males, 80-84 for white females, 65-69 for other than white males and 75-79 for other than white females. While these modal ages at death do not take into consideration differences in age structure of each sub-group's population, they do reflect differences in the mortality patterns of each sub-group.

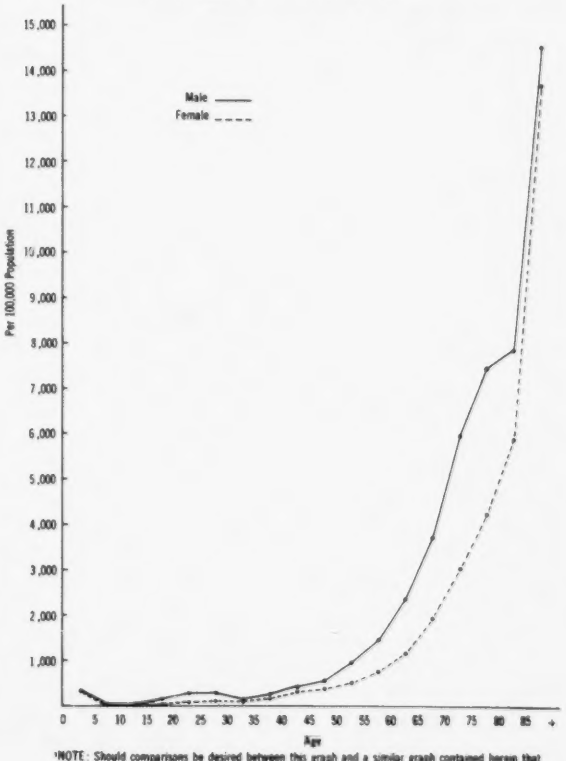
In 1977, 27,094 deaths occurred to persons under the age of 65. This constitutes 36.5 percent of all deaths. The percentage of all deaths to white males that involved persons 65 years of age is 39.1. The corresponding figure for other than white males is 61.5. Similarly for other than white females, 51.1

TABLE 2.3—Death Rates[1] by Age and Sex, Michigan Residents, 1977

AGE	TOTAL	MALE	FEMALE
All Ages	812.2	926.2	701.5
0-4 Years	327.6	363.6	289.4
5-9 Years	28.3	30.2	26.3
10-14 Years	33.3	44.3	21.9
15-19 Years	99.7	144.3	55.4
20-24 Years	145.4	229.2	67.1
25-29 Years	169.9	283.3	85.8
30-34 Years	129.0	167.4	88.2
35-39 Years	189.0	223.3	148.7
40-44 Years	352.5	408.0	290.2
45-49 Years	495.2	596.5	388.5
50-54 Years	728.5	958.1	507.7
55-59 Years	1,072.2	1,430.6	740.9
60-64 Years	1,736.2	2,359.0	1,156.4
65-69 Years	2,777.9	3,709.7	1,958.7
70-74 Years	4,335.1	5,978.2	3,070.0
75-79 Years	5,528.6	7,415.1	4,257.6
80-84 Years	6,678.1	7,851.6	5,892.4
85 and Over	13,944.8	14,468.7	13,642.0

[1] Rates per 100,000 population.

FIGURE 2.2—Death Rates by Age and Sex, Michigan Residents, 1977[1]



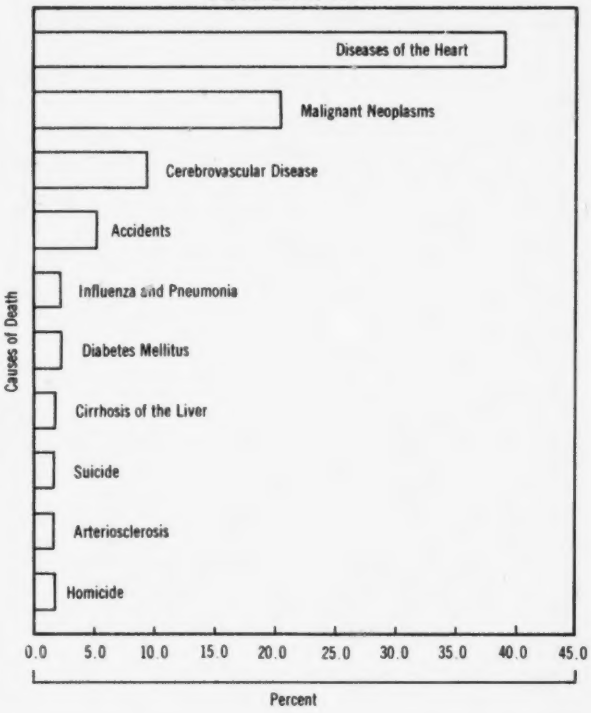
[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

percent were deaths before age 65; whereas, white females displayed the smallest percentage of deaths prior to age 65 with 26.6 percent.

Data in Table 2.3 and Figure 2.2 illustrate that males experience higher death rates at every age group than do females. The largest relative differences in rate occur in the age groups of 15-19, 20-24, and 25-29.

The high death rates for persons age 0-4 reflect the influence of infant mortality. Death rates for males age 20-24 and 25-29 are much higher than the rates for the preceding (younger) age group of 15-19 and the 30-34 age group, while females displayed a steady progression through these age intervals. The value of these age-specific rates for comparison is that they compensate for differences in population structure. A good example of the effect this has is displayed by the age groups of 80-84 and 85 and over. In both these age intervals fewer male deaths were recorded than female deaths in 1977 (Table 2.2), yet male death rates for these ages are higher than those for females. This apparent paradox is the result of the fact that there are far fewer males at ages of 80 years and over than there are females.

FIGURE 2.3—Leading Cause of Death, Michigan Residents, 1977



LEADING CAUSES OF DEATH

In 1977, 84.7 percent of all deaths were caused by disease in one of the ten cause of death categories. These principal causes of death in Michigan in 1977 remained much the same as they have in the recent past. The number of deaths and the death rates for the 10 leading causes are shown in Table 2.4. The percentage of the total deaths resulting from each of the 10 principal causes is illustrated in Figure 2.3.

There has been no change in the first four rankings over the 27 years since 1950. The ranking of 5th and 6th have been held by diabetes mellitus and influenza and pneumonia, with influenza and pneumonia ranking 5th in 17 of the 28 years from 1950 through 1977. Cirrhosis of the liver was not among the ten leading

TABLE 2.4—Leading Causes of Death and Cause-Specific Rates Michigan and United States Residents, 1977

RANK	CAUSE OF DEATH	NUMBER OF DEATHS		RATE	
		MICHIGAN	U.S.[1]	MICHIGAN	U.S.[1]
1	Diseases of the Heart	28,895	713,640	316.5	331.6
2	Malignant Neoplasms	15,125	384,000	165.7	178.4
3	Cerebrovascular Diseases	6,818	181,580	74.7	84.4
4	Accidents	3,945	100,700	43.2	46.8
5	Influenza and Pneumonia	1,660	49,630	18.2	23.1
6	Diabetes Mellitus	1,615	33,340	17.7	15.5
7	Cirrhosis of the Liver	1,356	31,050	14.9	14.4
8	Suicide	1,280	26,970	14.0	12.5
9	Arteriosclerosis	1,164	28,840	12.8	13.4
10	Homicide	946	19,470	10.4	9.0
	Sub Total	62,804	1,569,220	688.0	729.1
	All Other Causes	11,340	319,290	124.2	148.4
	Total	74,144	1,888,510	812.2	877.5

[1] United States figures are provisional.

TABLE 2.5—Leading Causes of Death and Cause-Specific Rates By Age, Sex, and Race, Michigan Residents, 1977

Age	TOTAL[1]			White Males			White Females			All Other Males			All Other Females		
	Rank and Cause of Death	Number	Specific Rate	Rank and Cause of Death	Number	Specific Rate	Rank and Cause of Death	Number	Specific Rate	Rank and Cause of Death	Number	Specific Rate	Rank and Cause of Death	Number	Specific Rate
All Ages	1. Diseases of the Heart	28,895	316.5	1. Diseases of the Heart	14,697	377.8	1. Diseases of the Heart	11,393	283.1	1. Diseases of the Heart	1,510	249.7	1. Diseases of the Heart	1,265	207.4
	2. Malignant Neoplasms	15,125	165.7	2. Malignant Neoplasms	7,363	189.3	2. Malignant Neoplasms	5,896	146.5	2. Malignant Neoplasms	1,106	182.9	2. Malignant Neoplasms	751	123.1
	3. Cerebrovascular Disease	6,818	74.7	3. Cerebrovascular Disease	2,633	67.7	3. Cerebrovascular Disease	3,428	85.2	3. Homicide	495	81.8	3. Cerebrovascular Disease	384	62.9
	4. Accidents	3,945	43.2	4. Accidents	2,345	60.3	4. Accidents	1,096	27.2	4. Cerebrovascular Disease	366	60.5	4. Accidents	143	23.4
	5. Influenza and Pneumonia	1,660	18.2	5. Suicide	863	22.2	5. Diabetes Mellitus	803	20.0	5. Accidents	339	56.0	5. Diabetes Mellitus	128	21.0
	All Causes	74,144	812.2	All Causes	36,136	928.9	All Causes	28,677	712.7	All Causes	5,431	898.0	All Causes	3,800	622.9
Under 1 Year	1. Certain Diseases of Early Infancy (Birth Injury—60) (Asphyxia of Newborn—137) (Immaturity Unqualified—155) (Other—681)	1,033	775.4	1. Certain Diseases of Early Infancy (Birth Injury—23) (Asphyxia of Newborn—49) (Immaturity Unqualified—55) (Other—272)	399	710.4	1. Certain Diseases of Early Infancy (Birth Injury—16) (Asphyxia of Newborn—43) (Immaturity Unqualified—45) (Other—202)	306	577.6	1. Certain Diseases of Early Infancy (Birth Injury—9) (Asphyxia of Newborn—29) (Immaturity Unqualified—36) (Other—114)	188	1,565.0	1. Certain Diseases of Early Infancy (Birth Injury—12) (Asphyxia of Newborn—16) (Immaturity Unqualified—17) (Other—91)	136	1,127.0
	2. Congenital Anomalies	311	233.4	2. Congenital Anomalies	143	254.6	2. Congenital Anomalies	118	222.7	2. Sudden Infant Death	57	474.5	2. Sudden Infant Death	37	306.6
	3. Sudden Infant Death	237	177.9	3. Sudden Infant Death	92	163.8	3. Sudden Infant Death	51	96.3	3. Congenital Anomalies	25	208.1	3. Congenital Anomalies	22	182.3
	4. Influenza and Pneumonia	57	42.8	4. Influenza and Pneumonia	27	48.1	4. Accidents	17	32.1	4-5. Influenza and Pneumonia	7	58.3	4. Septicemia	11	91.2
	5. Accidents	43	32.3	5. Accidents	14	24.9	5. Influenza and Pneumonia	14	26.4	Accidents			5. Influenza and Pneumonia	9	74.6
	All Causes	1,945	1,459.9	All Causes	785	1,397.7	All Causes	586	1,106.0	All Causes	323	2,688.8	All Causes	244	2,022.0
1-4 Years	1. Accidents	141	24.9	1. Accidents	64	26.4	1. Accidents	46	19.9	1. Accidents	17	35.8	1. Accidents	14	29.9
	2. Congenital Anomalies	52	9.2	2. Congenital Anomalies	17	7.0	2. Congenital Anomalies	21	9.1	2. Congenital Anomalies	9	19.0	2. Congenital Anomalies	5	10.7
	3. Malignant Neoplasms	33	5.8	3. Malignant Neoplasms	11	4.5	3. Malignant Neoplasms	18	7.8	3. Homicide	8	16.9	3. Homicide	3	6.4
	4. Homicide	15	2.6	4. Meningitis	5	2.1	4. Acute Bronchitis	4	1.7	4. Malignant Neoplasms	3	6.3	4. Influenza and Pneumonia	2	4.3
	5. Meningitis	10	1.8	5. Influenza and Pneumonia	3	1.2	5. Meningitis	3	1.3	5-6. See Below	2	4.2	5-11. See Below	1	2.1
	All Causes	350	61.1	All Causes	134	55.3	All Causes	125	54.2	All Causes	56	118.1	All Causes	35	74.9
										Meningitis and Diseases of the Heart are both tied for 5th rank.			Acute Bronchitis, Asthma, Diseases of the Heart, Epilepsy, Malignant Neoplasms, Mental Retardation, and Other Diseases of Early Infancy, are all tied for 5th rank.		
5-14 Years	1. Accidents	307	16.8	1. Accidents	151	19.4	1. Accidents	93	12.2	1. Accidents	42	28.2	1. Accidents	20	15.1
	2. Malignant Neoplasms	87	4.8	2. Malignant Neoplasms	47	6.0	2. Malignant Neoplasms	30	3.9	2. Homicide	7	4.7	2. Malignant Neoplasms	5	3.8
	3. Congenital Anomalies	33	1.8	3. Congenital Anomalies	18	2.3	3. Congenital Anomalies	10	1.3	3. Malignant Neoplasms	5	3.4	3. Congenital Anomalies	3	2.3
	4. Homicide	16	0.9	4. Suicide	11	1.4	4. Influenza and Pneumonia	5	0.7	4. Injuries Undetermined	4	2.7	4-5. Diseases of the Heart	2	1.5
	5. Suicide	13	0.7	5. Influenza and Pneumonia	5	0.6	5-7. See Below	3	0.4	5. Diseases of the Heart	3	2.0	Homicide		
	All Causes	563	30.9	All Causes	275	35.3	All Causes	178	23.3	All Causes	72	48.3	All Causes	36	27.2
							Diseases of the Heart, Cerebrovascular Disease, and Homicide are all tied for 5th rank.								
15-24 Years	1. Accidents	1,030	60.6	1. Accidents	733	103.5	1. Accidents	219	29.8	1. Homicide	142	111.3	1. Homicide	31	23.9
	2. Homicide	267	15.7	2. Suicide	191	27.0	2. Suicide	41	5.6	2. Accidents	54	42.3	2. Accidents	18	13.9
	3. Suicide	262	15.4	3. Homicide	69	9.7	3. Malignant Neoplasms	29	3.9	3. Suicide	21	16.5	3. Diseases of the Heart	8	6.2
	4. Malignant Neoplasms	113	6.6	4. Malignant Neoplasms	68	9.6	4. Homicide	25	3.4	4. Malignant Neoplasms	11	8.6	4. Suicide	7	5.4
	5. Diseases of the Heart	50	2.9	5. Diseases of the Heart	23	3.2	5-6. See Below	15	2.0	5. Influenza and Pneumonia	10	7.8	5. Malignant Neoplasms	5	3.9
	All Causes	2,041	120.0	All Causes	1,226	173.1	All Causes	423	57.5	All Causes	282	221.1	All Causes	100	77.1
							Diseases of the Heart and Congenital Anomalies are both tied for 5th rank.								
25-34 Years	1. Accidents	538	42.9	1. Accidents	374	71.3	1. Accidents	89	15.5	1. Homicide	160	226.5	1. Homicide	34	38.8
	2. Suicide	278	22.2	2. Suicide	176	33.6	2. Malignant Neoplasms	86	15.0	2. Accidents	48	68.0	2. Accidents	25	28.5
	3. Homicide	281	22.4	3. Malignant Neoplasms	72	13.7	3. Suicide	60	10.5	3. Suicide	32	45.3	3. Malignant Neoplasms	16	18.3
	4. Malignant Neoplasms	186	14.8	4. Homicide	60	11.4	4. Cerebrovascular Disease	25	4.4	4. Diseases of the Heart	21	29.7	4. Cirrhosis of the Liver	14	16.0
	5. Diseases of the Heart	108	8.6	5. Diseases of the Heart	55	10.5	5. Diseases of the Heart	24	4.2	5. Mental Disorders	19	26.9	5. Suicide	11	12.6
	All Causes	1,856	147.9	All Causes	900	171.6	All Causes	405	70.8	All Causes	374	529.5	All Causes	168	191.8
35-49 Years	1. Diseases of the Heart	1,188	86.2	1. Diseases of the Heart	748	116.4	1. Malignant Neoplasms	532	92.7	1. Diseases of the Heart	149	175.7	1. Malignant Neoplasms	93	121.1
	2. Malignant Neoplasms	1,156	83.9	2. Malignant Neoplasms	429	66.7	2. Diseases of the Heart	199	34.7	2. Homicide	104	122.6	2. Diseases of the Heart	52	119.6
	3. Accidents	501	36.3	3. Accidents	307	47.8	3. Accidents	103	17.9	3. Malignant Neoplasms	102	120.2	3. Cirrhosis of the Liver	49	63.8
	4. Cirrhosis of the Liver	325	23.6	4. Suicide	152	23.6	4. Cerebrovascular Disease	79	13.8	4. Cirrhosis of the Liver	80	94.3	4. Cerebrovascular Disease	34	44.3
	5. Suicide	245	17.8	5. Cirrhosis of the Liver	124	19.3	5. Suicide	75	13.1	5. Accidents	66	77.8	5. Homicide	23	30.0
	All Causes	4,690	340.2	All Causes	2,211	343.9	All Causes	1,359	236.7	All Causes	695	819.3	All Causes	419	545.8
50-64 Years	1. Diseases of the Heart	5,875	423.6	1. Diseases of the Heart	3,749	627.1	1. Malignant Neoplasms	1,790	281.3	1. Diseases of the Heart	536	722.5	1. Diseases of the Heart	305	387.7
	2. Malignant Neoplasms	4,800	346.1	2. Malignant Neoplasms	2,294	383.7	2. Diseases of the Heart	1,275	200.4	2. Malignant Neoplasms	417	562.1	2. Malignant Neoplasms	295	374.9
	3. Cerebrovascular Disease	805	58.0	3. Cerebrovascular Disease	359	60.1	3. Cerebrovascular Disease	280	44.0	3. Cerebrovascular Disease	99	133.4	3. Cerebrovascular Disease	67	85.2
	4. Cirrhosis of the Liver	620	44.7	4. Cirrhosis of the Liver	343	57.4	4. Cirrhosis of the Liver	146	22.9	4. Cirrhosis of the Liver	86	115.9	4. Cirrhosis of the Liver	45	57.2
	5. Accidents	515	37.1	5. Accidents	294	49.2	5. Accidents	136	21.4	5. Accidents	61	82.2	5. Diabetes Mellitus	38	48.3
	All Causes	15,649	1,128.3	All Causes	8,585	1,436.0	All Causes	4,561	716.9	All Causes	1,542	2,078.5	All Causes	940	1,194.7
65 and Over	1. Diseases of the Heart	21,626	2,449.5	1. Diseases of the Heart	10,104	2,986.1	1. Diseases of the Heart	9,867	2,147.7	1. Diseases of the Heart	791	2,018.6	1. Diseases of the Heart	844	1,838.5
	2. Malignant Neoplasms	8,744	990.4	2. Malignant Neoplasms	4,439	1,311.9	2. Malignant Neoplasms	3,409	742.0	2. Malignant Neoplasms	555	1,416.3	2. Malignant Neoplasms	336	731.9
	3. Cerebrovascular Disease	5,703	646.0	3. Cerebrovascular Disease	2,165	639.8	3. Cerebrovascular Disease	3,028	659.1	3. Cerebrovascular Disease	235	599.7	3. Cerebrovascular Disease	271	590.3
	4. Influenza and Pneumonia	1,234	139.8	4. Influenza and Pneumonia	620	183.2	4. Arteriosclerosis	647	140.8	4-5. Influenza and Pneumonia	58	148.0	4. Diabetes Mellitus	77	167.7
	5. Diabetes Mellitus	1,172	132.7	5. Arteriosclerosis	422	124.7	5. Diabetes Mellitus	644	140.2	Diabetes Mellitus			5. Influenza and Penumonia	35	76.2
	All Causes	47,038	5,327.8	All Causes	22,013	6,505.7	All Causes	21,039	4,579.4	All Causes	2,086	5,323.3	All Causes	1,857	4,045.1

[1] Note subtotals by race do not add to the grand total as the race was not stated on 67 male and 31 female records. In addition there were 2 records with sex not stated. Age groups do not add to respective totals because records with age not stated are included in the total.

causes of death in 1950. This cause ranked 10th in 1954 and has been among the ten most frequent causes consistently since 1960, gradually moving from 10th to 7th. The ranking of homicide and suicide in the top ten is also fairly recent. Homicide rose to the 9th leading cause in 1972 and is 10th in 1977. Suicide first ranked in the top ten in 1964 when it was the 10th leading cause. Arteriosclerosis has consistently been among the ten leading causes of death, ranking 7th in 1950 and 9th in 1977. In 1977, six of the ten leading causes of death are chronic conditions, one is an acute disease category, and three are external non-disease groupings.

While the four leading causes of death have not changed since 1950, influenza and pneumonia, and diabetes mellitus have alternately ranked 5th and 6th over the last six years with influenza and pneumonia ranking 5th in 1977. Cirrhosis of the liver has ranked 7th since 1969. Suicide replaced arteriosclerosis as the 8th leading cause in 1977.

No major changes in the order of the ten leading causes for the United States occurred in 1977. Certain differences between the United States figures and those of Michigan should be noted. The overall Michigan death rate is significantly lower than the national rate. Some cause-specific rates are, however, higher than comparatively national rates. These causes are diabetes mellitus, cirrhosis of the liver, suicide, and homicide.

The five most frequent causes of death among all Michigan resident deaths has changed little in recent years. This does not imply similarity in the leading causes of death among residents at different ages, of different sexes or different races. Table 2.5 contains the five most frequent causes of death by age, sex, and race. Careful examination of this table will disclose that major differences in the leading causes of death are associated with these three characteristics. No single cause of death is among the most frequent causes in all categories. Malignant neoplasms have the most widespread significance of any condition as it is present in 26 of the 32 age/sex/race groupings. Accidental deaths are ranked in 25 groupings. Heart disease, the most frequent cause of death in the state, is one of the five leading causes of death in 23 of the 32 individual cross classifications. The variation in leading causes of death by age is most evident among deaths to infants under one year. This category has little similarity to any other age group. External causes of death, including homicide, suicide and accidents, are predominant killers among persons 1 through 34 years of age. At ages 35 years and over, chronic conditions are responsible for the largest percentage of deaths.

THE PROBABILITY OF EVENTUAL DEATH DUE TO A SPECIFIED CAUSE

While cause-specific death rates are useful in gauging the frequency of death due to certain causes and in making comparisons between areas or populations, they do not relate the risk that the condition imposes on the population with clarity. Mortality data can be used to develop this risk in probabilistic terms. Through the application of life expectancy techniques, a probability of death due to a given cause can be estimated. Such probabilities represent the average risk of eventual death being caused by a specified condition under an assumption that the mortality across all ages that was observed in a time period will remain unchanged through the remaining life of the population. These probabilities can be estimated for any given age attained. The following list relates the probability at birth of dying from the ten leading causes of death based upon Michigan mortality experience for the years 1975 through 1977.

	Probability at Birth of Eventual Death Due to Condition for:	
Disease Category	*Males*	*Females*
Heart Disease	.413	.425
Malignant Neoplasms	.194	.173
Cerebrovascular Disease	.085	.138
Accidents	.047	.028
Diabetes Mellitus	.018	.031
Influenza and Pneumonia	.028	.028
Cirrhosis of the Liver	.020	.011
Arteriosclerosis	.016	.028
Suicide	.016	.006
Homicide	.014	.004
All Other Causes	.149	.128
	1.000	1.000

The 1975 through 1977 data would indicate that 85.1 percent of all males and 87.2 percent of all females in Michigan will die from one of the ten leading causes if all things remain constant. Approximately four of every ten people will die from heart disease. Women face higher risks of death due to the chronic conditions of cerebrovascular disease, diabetes mellitus and arteriosclerosis than do males. At the same time, males are more likely to die from accidents, cirrhosis of the liver, homicide, suicide or cancer, according to the mortality experience in Michigan during 1975 through 1977.

DISEASES OF THE HEART

In 1977, 28,895 Michigan residents died from diseases of the heart. Heart disease continues to be the single largest cause of death in Michigan and the United States, accounting for more deaths than the next four largest causes combined; namely cancer, stroke, accidents, and influenza and pneumonia.

Of the 28,895 deaths due to diseases of the heart in 1977, 16,229 were to males and 12,666 to females. The median age at death for males was 71 years compared to a figure of 79 for females. The median age at death for all heart deaths was 75 (Table 2.6).

The white male median age of 72 years exceeded the other than white male median by 6 years. The median age at death for white females was 80, 8 years above that for other than white females.

Examination of Table 2.7 reveals that the heart disease death rate for males is substantially higher than that for females (361.0 as compared to 273.3 per 100,000 population). Age-specific heart disease death rates for males and females are similar below the age of 25. For all older ages the male rates are substantially above those of females. The greatest differential occurred in the age ranges between 30 and 64. Male rates in these age groups range between 2.7 and 3.2 times the corresponding rates for females.

The age and sex-specific heart disease death rates contained in Table 2.7 are graphically displayed in Figure 2.4. The death rate associated with this cause can be seen to rise markedly with advancing age. Heart disease was the underlying cause of 36 deaths in the age group 0-4 or about 1.6 percent of all deaths in this age group. In contrast 50.5 percent of all deaths in the age group 85 and over were attributed to this cause in 1977. The heart disease death rate was 7,042.3 in the 85 and over age group.

In 1900 the crude heart disease death rate in Michigan was 117.1, the lowest rate of this century. In 1977, this rate was 316.5. The highest observed rate of death due to heart disease was 342.9 in 1962. The heart disease death rate rose through the time period

TABLE 2.6—Deaths Due to Diseases of the Heart by Age, Race, and Sex, Michigan Residents, 1977

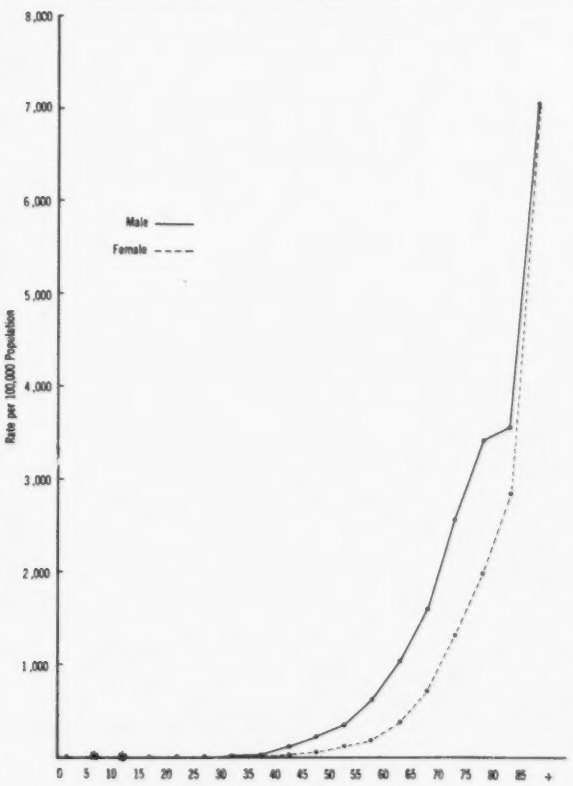
	ALL RACES			WHITE			ALL OTHER[1]		
AGE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1 Year	31	17	14	22	13	9	9	4	5
1-4 Years	5	3	2	2	1	1	3	2	1
5-9 Years	5	2	3	4	1	3	1	1	—
10-14 Years	6	4	2	2	2	—	4	2	2
15-19 Years	14	9	5	12	9	3	2	—	2
20-24 Years	36	18	18	26	14	12	10	4	6
25-29 Years	40	25	15	28	19	9	12	6	6
30-34 Years	68	51	17	51	36	15	17	15	2
35-39 Years	147	113	34	104	85	19	43	28	15
40-44 Years	325	247	78	254	203	51	71	44	27
45-49 Years	716	537	179	589	460	129	127	77	50
50-54 Years	1,276	948	328	1,064	821	243	212	127	85
55-59 Years	1,921	1,432	489	1,641	1,248	393	280	184	96
60-64 Years	2,678	1,912	766	2,319	1,680	639	359	232	127
65-69 Years	3,262	2,147	1,115	2,894	1,933	961	368	214	154
70-74 Years	3,865	2,330	1,535	3,508	2,136	1,372	357	194	163
75-79 Years	4,274	2,289	1,985	3,901	2,105	1,796	373	184	189
80-84 Years	4,430	2,018	2,412	4,176	1,912	2,264	254	106	148
85-89 Years	3,479	1,398	2,081	3,303	1,333	1,970	176	65	111
90 and Over	2,316	728	1,588	2,189	685	1,504	127	43	84
Not Stated	1	1	—	1	1	—	—	—	—
Total	28,895	16,229	12,666	26,090	14,697	11,393	2,805	1,532	1,273
Median Age	75	71	79	76	72	80	68	66	72

[1] All Other includes race not stated.

TABLE 2.7—Heart Disease Death Rates by Age and Sex, Michigan Residents, 1977

AGE	TOTAL	MALE	FEMALE
All Ages	316.5	361.0	273.3
0-4 Years	5.1	5.6	4.7
5-9 Years	0.6	*	*
10-14 Years	0.6	*	*
15-19 Years	1.5	1.9	1.0
20-24 Years	4.8	4.9	4.6
25-29 Years	6.9	10.1	4.5
30-34 Years	10.1	14.6	5.2
35-39 Years	28.5	40.5	14.4
40-44 Years	83.2	119.5	42.4
45-49 Years	151.6	221.8	77.8
50-54 Years	243.6	369.2	122.8
55-59 Years	404.6	628.0	198.2
60-64 Years	689.5	1,021.1	380.8
65-69 Years	1,143.3	1,608.4	734.3
70-74 Years	1,865.4	2,585.2	1,311.2
75-79 Years	2,560.6	3,406.9	1,990.4
80-84 Years	3,138.2	3,564.6	2,852.8
85 and Over	7,042.3	7,055.2	7,034.8

FIGURE 2.4—Heart Disease Death Rates by Age and Sex, Michigan Residents, 1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

1900-1950. This rate has remained relatively stable over the last twenty-five years. The annual rate declined in four of the past five years. The 1977 rate was 7.7 percent below the 1962 peak rate. The rate for Michigan was consistently close to the national rates until 1946. Since that time the Michigan rate has been well below national rates. In 1977, the national rate was an estimated 331.6, 4.8 percent above the Michigan rate of death due to heart disease.

The most prevalent condition of heart disease is acute myocardial infarction (13,425 deaths in 1977) commonly referred to as a "coronary" (Table 2.8). Almost as frequent is chronic ischemic heart disease. In 1977, there were 12,499 deaths attributed to this cause. Together, acute myocardial infarction and chronic ischemic heart disease are the underlying cause in 89.7 percent of all Michigan heart disease

FIGURE 2.5—Heart Disease Death Rates, Michigan and United States Residents,[1] 1900-1977[2]

[1]National rates are from death registration states for 1900-1932 and the United States for 1933-1977. United States 1977 rate is provisional.
[2]Heart Disease death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

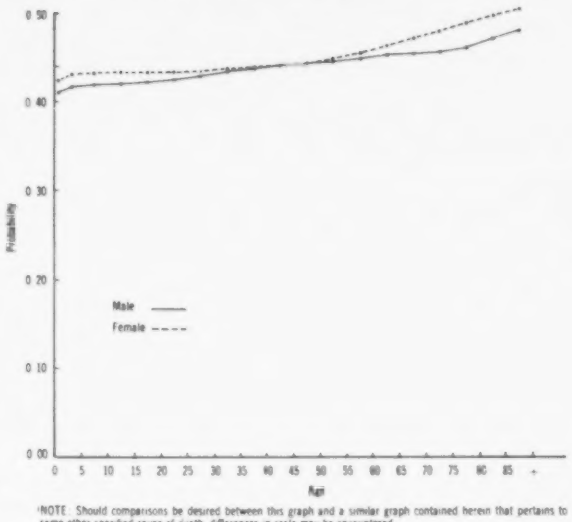
deaths. The remaining 10.3 percent of the deaths, if considered separately, would comprise the 5th leading cause of death. These deaths are distributed among 21 other categories of heart disease. Nearly 60 percent of the remaining 2,971 deaths can be attributed to two causes: symptomatic heart disease and hypertensive heart disease (1,444 and 321 deaths, respectively).

The probability of eventually dying from heart disease, based on death data from 1975, 1976 and 1977, is 0.41 for males and 0.42 for females at birth. Males displayed a slightly greater propensity to die from other causes. The chance associated with dying from

TABLE 2.8—Deaths Due to Diseases of the Heart by Detailed Cause, Michigan Residents, 1977

ICDA LIST NO.	CAUSE OF DEATH	NO. OF DEATHS	PER-CENT
410	Acute Myocardial Infarction	13,425	46.5
412	Chronic Ischemic Heart Disease	12,499	43.3
427	Symptomatic Heart Disease	1,444	5.0
402	Hypertensive Heart Disease	321	1.1
425	Cardiomyopathy	189	0.7
395	Diseases of Aortic Valve	157	0.5
394	Diseases of Mitral Valve	135	0.5
398	Other Heart Disease, Specified as Rheumatic	112	0.4
411	Other Acute and Subacute Ischemic Heart Disease	93	0.3
404	Hypertensive Heart and Renal Disease	91	0.3
429	Ill-Defined Heart Disease	90	0.3
426	Pulmonary Heart Disease	78	0.3
428	Other Myocardial Insufficiency	68	0.2
396	Diseases of Mitral and Aortic Valves	48	0.2
424	Chronic Disease of Endocardium	40	0.1
421	Acute and Subacute Endocarditis	36	0.1
423	Chronic Disease of Pericardium, Nonrheumatic	22	0.1
397	Diseases of Other Endocardinal Structure	20	0.1
413	Angina Pectoris	9	0.0
422	Acute Myocarditis	9	0.0
391	Rheumatic Fever with Heart Involvement	4	0.0
393	Diseases of Pericardium	2	0.0
420	Acute Pericarditis, Nonrheumatic	2	0.0
390	Rheumatic Fever No Heart Involvement	1	0.0
	TOTAL	28,895	100.0

FIGURE 2.6—Probability of Eventually Dying from Heart Disease by Age and Sex, Michigan Residents, 1975-1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

heart disease increases steadily with advancing age as certain competing causes of death become less likely. By age 85, the observed probability was 0.48 for males and 0.51 for females in 1975-1977. Males are generally less likely to eventually die from heart disease, however, in the ages of 35 through 54 the probabilities demonstrated by each sex are quite similar. The higher probability for females across most age intervals reflects smaller chances of death due to some cause other than heart disease.

An apparent inconsistency can be noted by review of Figure 2.4 and Figure 2.6. The heart disease mortality rate for males is higher than that for females over all ages, yet the chance of death due to heart disease is slightly greater for females over most ages. This paradox is explained by a comparison of these two measures. The cause-specific mortality rate measures the proportion of a population that have died from the particular cause over a certain period of time. The probability estimate takes into account the present age and cause-specific mortality rates and the life expectancy of the population. A greater proportion of all females now alive will live into the older age intervals where they will be subject to the high heart disease mortality rates characteristic of those age groups. The effect of the longer female life span outweighs the effect of the higher male mortality rate from heart disease.

CANCER

Of 74,144 Michigan resident deaths, 15,125 persons died from cancer in 1977. Although not the leading cause of death in Michigan or the United States, cancer affects all the human body's major systems and persons of all ages.

Of the 15,125 cancer deaths in 1977 occurring to Michigan residents, 8,472 were males while 6,653 occurred to females. The median age at death was 68 for males and 67 for females (Table 2.9). The median age for white females was the same as for white males, 68 years. Other than white males with a median of 65 years exceeded the other than white female median age by two years.

Cancer death rates are higher overall for males (188.5) than for females (143.6). Age-specific rates for males are higher than females in thirteen of the eighteen age groups. The male mortality rate due to cancer is 60 to 90 percent higher than female rates at ages 65 and over. Only in the age groups from 30 through 49 are female cancer rates appreciably higher. In the first of these age groups (30-34), female cancer mortality is 84 percent above the 12.1 rate for males. The relative differences of male and female rates for ages 35-39 is 66 percent and for the 40-44 and 45-49 age group, 22 percent.

TABLE 2.9—Deaths Due to Cancer by Age, Race, and Sex, Michigan Residents, 1977

AGE	ALL RACES			WHITE			ALL OTHER[1]		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1 Year	6	4	2	5	3	2	1	1	—
1-4 Years	33	14	19	29	11	18	4	3	1
5-9 Years	38	20	18	35	20	15	3	—	3
10-14 Years	49	32	17	42	27	15	7	5	2
15-19 Years	54	35	19	46	31	15	8	4	4
20-24 Years	59	44	15	51	37	14	8	7	1
25-29 Years	71	42	29	63	39	24	8	3	5
30-34 Years	115	42	73	95	33	62	20	9	11
35-39 Years	183	76	107	160	69	91	23	7	16
40-44 Years	307	147	160	245	103	142	62	44	18
45-49 Years	666	308	358	556	257	299	110	51	59
50-54 Years	1,206	655	551	1,004	537	467	202	118	84
55-59 Years	1,601	875	726	1,333	713	620	268	162	106
60-64 Years	1,993	1,182	811	1,747	1,044	703	246	138	108
65-69 Years	2,192	1,300	892	1,909	1,107	802	283	193	90
70-74 Years	2,167	1,334	833	1,943	1,190	753	224	144	80
75-79 Years	1,786	1,024	762	1,616	932	684	170	92	78
80-84 Years	1,480	800	680	1,362	727	635	118	73	45
85-89 Years	813	397	416	742	358	384	71	39	32
90 and Over	306	141	165	276	125	151	30	16	14
Not Stated	—	—	—	—	—	—	—	—	—
Total	15,125	8,472	6,653	13,259	7,363	5,896	1,886	1,109	757
Median Age	68	68	67	68	68	68	64	65	63

[1] All Other includes race not stated.

The cancer death rates displayed in Figure 2.7 shows a strong increase in mortality due to cancer with advancing age. Males demonstrated higher rates from birth to age 30 than females. From 30 years of age through age 50, female cancer death rates are slightly above those of males. Male rates then pass those for females and rise much faster from 50 years of age through to age 80.

Cancer death rates have risen steadily since 1900 (Figure 2.8). In 1977, the rate was 165.7, the highest observed in this century. The 1977 rate surpassed the previous high rate of 163.4 in 1976. The lowest observed rate for Michigan was 59.3 in 1902. Michigan's cancer death rate was below the national rate from 1900 through 1915. During the period 1916 through 1946 Michigan was generally at the national rate. Since 1947, the state rate has been consistently below the national cancer death rate. Over the last 11 years,

TABLE 2.10—Cancer Death Rates by Age and Sex, Michigan Residents, 1977

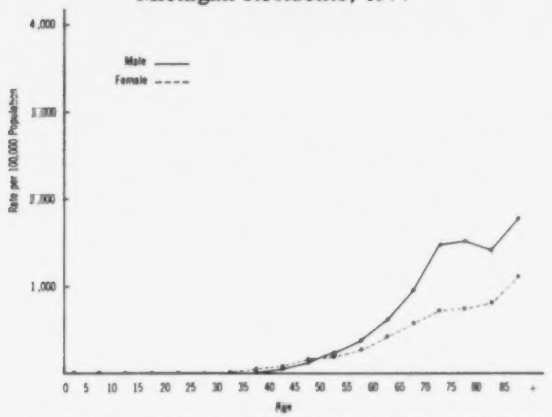
AGE	TOTAL	MALE	FEMALE
All Ages	165.7	188.5	143.6
0-4 Years	5.6	5.0	6.1
5-9 Years	4.3	4.5	4.2
10-14 Years	5.2	6.6	3.7
15-19 Years	5.7	7.4	4.0
20-24 Years	7.8	12.0	3.8
25-29 Years	12.3	17.0	8.7
30-34 Years	17.0	12.1	22.3
35-39 Years	35.5	27.2	45.2
40-44 Years	78.6	71.1	87.0
45-49 Years	141.1	127.2	155.6
50-54 Years	230.2	255.1	206.3
55-59 Years	337.2	383.7	294.3
60-64 Years	513.2	631.3	403.2
65-69 Years	768.3	973.9	587.5
70-74 Years	1,045.9	1,480.1	711.6
75-79 Years	1,070.0	1,524.1	764.1
80-84 Years	1,048.4	1,413.1	804.3
85 and Over	1,359.8	1,785.4	1,114.0

the national rate has been rising faster than the rate observed in Michigan. The national cancer death rate in 1977 was an estimated 178.4. This is 7.7 percent above the state rate.

Deaths from cancer for 59 different causes and sites are presented in Table 2.11. The most common underlying cause of cancer mortality is malignant neoplasm of the trachea, bronchus, and lung (3,613 deaths). In 1977, 22.7 percent of all cancer deaths are attributed to this cause. The second most frequent cause of cancer mortality is cancer of the large intestine (1,610 deaths). Breast cancer (1,359 deaths) is third while malignant neoplasms of the prostate and the pancreas are fourth and fifth. These first five of the 59 causes listed constitute 53.8 percent of all cancer deaths in Michigan. Of the remaining 54 causes, 21 resulted in 100 or more deaths in 1977.

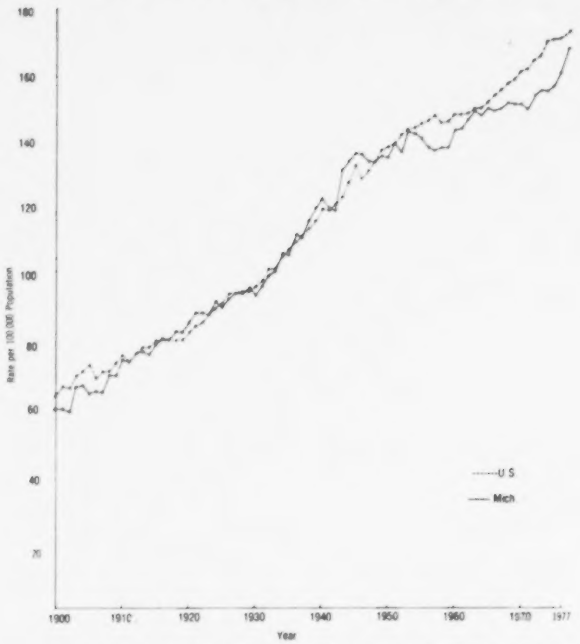
Based upon 1975 through 1977 death data, the probability of death due to malignant neoplasm is 0.194 for males and 0.173 for females at birth (Figure 2.9). The male probability rises slowly to a peak of 0.206 for ages 45-49 and 50-54 then drops rapidly to 0.120 at ages 85 and over. Female probabilities are more stable, displaying little change from birth to ages 45-49 then diminishing to 0.079 at age 85 and up. This falling probability beyond age 50, noting the high cancer mortality rates of older age (Figure 2.7), indicates that age-specific death rates due to competing causes of death are rising relatively faster with advancing age.

FIGURE 2.7—Cancer Death Rate by Age and Sex, Michigan Residents, 1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

FIGURE 2.8—Cancer Death Rates, Michigan and United States Residents,[1] 1900-1975[2]



[1]National rates are from Death Registration States for 1900-1932 and the United States for 1933-1977. United States rate for 1977 is provisional.

[2]Cancer death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical notes.

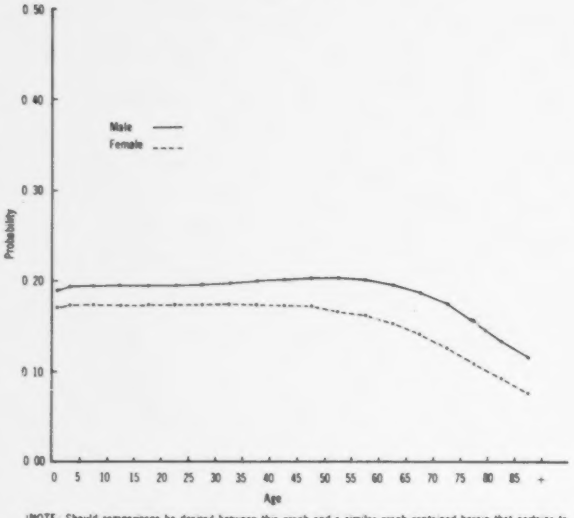
TABLE 2.11—Malignant Neoplasms by Site Affected, Michigan Residents, 1977

ICDA LIST NO.	CAUSE	NO. OF DEATHS	PER-CENT
162	Malignant Neoplasm of Trachea, Bronchus, and Lung	3,613	23.9
153	Malignant Neoplasm of Large Intestine Except Rectum	1,610	10.6
174	Malignant Neoplasm of Breast	1,359	9.0
185	Malignant Neoplasm of Prostate	805	5.3
157	Malignant Neoplasm of Pancreas	747	4.9
199	Malignant Neoplasm without Specification of Site	722	4.8
151	Malignant Neoplasm of Stomach	580	3.8
183	Malignant Neoplasm of Ovary, Fallopian Tube and Broad Ligament	425	2.8
188	Malignant Neoplasm of Bladder	386	2.6
191	Malignant Neoplasm of Brain	343	2.3
150	Malignant Neoplasm of Esophagus	332	2.2
154	Malignant Neoplasm of Rectum and Rectosigmoid Junction	330	2.2
189	Malignant Neoplasm of Other and Unspecified Urinary Organs	274	1.8
205	Myeloid Leukemia	274	1.8
197	Secondary Malignant Neoplasm of Respiratory and Digestive Systems	248	1.6
203	Multiple Myeloma	246	1.6
202	Other Neoplasms of Lymphoid Tissue	245	1.6
182	Other Malignant Neoplasm of Uterus	208	1.4
200	Lymphosarcoma and Reticulum-Cell Sarcoma	194	1.3
180	Malignant Neoplasm of Cervix Uteri	184	1.2
156	Malignant Neoplasm of Gallbladder and Bile Ducts	179	1.2
207	Other and Unspecified Leukemia	155	1.0

TABLE 2.11—Malignant Neoplasms by Site Affected, Michigan Residents, 1977 (Continued)

ICDA LIST NO.	CAUSE	NO. OF DEATHS	PER-CENT
204	Lymphatic Leukemia	151	1.0
161	Malignant Neoplasm of Larynx	149	1.0
195	Malignant Neoplasm of Ill-Defined Sites	119	0.8
172	Malignant Neoplasm of Skin	112	0.7
155	Malignant Neoplasm of Liver and Intra-hepatic Bile Ducts, Specified as Primary	89	0.6
201	Hodgkin's Disease	88	0.6
141	Malignant Neoplasm of Tongue	70	0.5
198	Other Secondary Malignant Neoplasms	70	0.5
171	Malignant Neoplasm of Connective and Other Soft Tissue	64	0.4
170	Malignant Neoplasm of Bone	63	0.4
145	Malignant Neoplasm of Other Parts of Mouth	57	0.4
192	Malignant Neoplasm of Other Parts of Nervous System	51	0.3
173	Other Malignant Neoplasms of Skin	48	0.3
149	Malignant Neoplasm of Pharynx, Unspecified	43	0.3
209	Myelofibrosis	43	0.3
146	Malignant Neoplasm of Oropharynx	40	0.3
193	Malignant Neoplasm of Thyroid Gland	40	0.3
184	Malignant Neoplasm of Other and Unspecified Female Genital Organs	39	0.3
186	Malignant Neoplasm of Testis	35	0.2
158	Malignant Neoplasm of Peritoneum and Retroperitoneal Tissue	34	0.2
163	Malignant Neoplasm of Other Respiratory Organs	33	0.2
152	Malignant Neoplasm of Small Intestine and Duodenum	27	0.2
159	Malignant Neoplasm of Unspecified Digestive Organs	22	0.1
147	Malignant Neoplasm of Nasopharynx	21	0.1
144	Malignant Neoplasm of Floor of Mouth	20	0.1
208	Polycythemia Vera	20	0.1
194	Malignant Neoplasm of Other Endocrine Glands	19	0.1
206	Monocytic Leukemia	18	0.1
142	Malignant Neoplasm of Salivary Gland	15	0.1
148	Malignant Neoplasm of Hypopharynx	15	0.1
160	Malignant Neoplasm of Nose, Nasal Cavities, Middle Ear and Accessory Sinuses	12	0.1
187	Malignant Neoplasm of Other and Unspecified Male Organs	12	0.1
190	Malignant Neoplasm of Eye	12	0.1
143	Malignant Neoplasm of Gum	6	0.0
140	Malignant Neoplasm of Lip	5	0.0
181	Chorionepithelioma	2	0.0
196	Secondary and Unspecified Malignant Neoplasm of Lymph Nodes	2	0.0
	TOTAL	15,125	99.8

FIGURE 2.9—Probability of Eventually Dying from Cancer by Age and Sex, Michigan Residents, 1975-1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CEREBROVASCULAR DISEASE

Deaths due to cerebrovascular disease (stroke) numbered 6,818 among Michigan resident deaths in 1977 or 9.2 percent of the 74,144 total resident deaths. There were 7.3 percent fewer stroke deaths than were observed in 1976 (7,354 deaths). Of the total in 1977, 3,002 were male deaths and 3,816 were female.

The median age at death for stroke victims was 79. The median age for females was 81 years or 5 years higher than that for males. Deaths to whites that were due to cerebrovascular disease displayed median ages several years higher than those for other than white persons. The median age for other than white males of 71 years contrasts with the white male median of 77. The other than white female median of 73 years is 8 years less than that of white females (Table 2.12).

TABLE 2.12—Deaths Due to Cerebrovascular Disease by Age, Race, and Sex, Michigan Residents, 1977

AGE	ALL RACES			WHITE			ALL OTHER[1]		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1 Year	9	5	4	3	1	2	6	4	2
1-4 Years	4	2	2	4	2	2	—	—	—
5-9 Years	2	1	1	2	1	1	—	—	—
10-14 Years	4	2	2	4	2	2	—	—	—
15-19 Years	11	6	5	11	6	5	—	—	—
20-24 Years	11	4	7	8	4	4	3	—	3
25-29 Years	22	9	13	16	6	10	6	3	3
30-34 Years	27	8	19	21	6	15	6	2	4
35-39 Years	40	20	20	25	13	12	15	7	8
40-44 Years	71	36	35	51	27	24	20	9	11
45-49 Years	109	50	59	84	41	43	25	9	16
50-54 Years	191	99	92	133	66	67	58	33	25
55-59 Years	249	131	118	195	99	96	54	32	22
60-64 Years	365	228	137	311	194	117	54	34	20
65-69 Years	605	341	264	526	302	224	79	39	40
70-74 Years	864	451	413	749	396	353	115	55	60
75-79 Years	1,126	519	607	1,009	456	553	117	63	54
80-84 Years	1,363	526	837	1,268	495	773	95	31	64
85-89 Years	1,051	359	692	991	329	662	60	30	30
90 and Over	694	205	489	650	187	463	44	18	26
Not Stated	—	—	—	—	—	—	—	—	—
Total	6,818	3,002	3,816	6,061	2,633	3,428	757	369	388
Median Age	79	76	81	79	77	81	72	71	73

[1] All Other includes race not stated.

The cerebrovascular disease death rate was 74.7 in 1977. The female rate of 82.3 was significantly higher than the rate for males (66.8). The age-specific death rates in Table 2.13 show female rates above male rates from the 25-29 age group through the 45-49 age group. Male rates were above those of females from the 50-54 age group through age group 75-79. In the 80-84 and 85 and over age intervals, the female rates are above the male rates. The female death rate is higher across all age intervals because of the larger proportion of women in the high risk older age groups.

TABLE 2.13—Cerebrovascular Disease Death Rates by Age and Sex, Michigan Residents, 1977

AGE	TOTAL	MALE	FEMALE
All Ages	74.7	66.8	82.3
0-4 Years	1.9	2.0	1.8
5-9 Years	*	*	*
10-14 Years	*	*	*
15-19 Years	1.2	1.3	1.0
20-24 Years	1.5	*	1.8
25-29 Years	3.8	3.6	3.9
30-34 Years	4.0	2.3	5.8
35-39 Years	7.8	7.2	8.4
40-44 Years	18.2	17.4	19.0
45-49 Years	23.1	20.7	25.6
50-54 Years	36.5	38.6	34.4
55-59 Years	52.4	57.5	47.8
60-64 Years	94.0	121.8	68.1
65-69 Years	212.0	255.5	173.9
70-74 Years	417.0	500.4	352.8
75-79 Years	674.6	772.5	608.7
80-84 Years	965.6	929.1	990.0
85 and Over	2,120.6	1,871.6	2,264.4

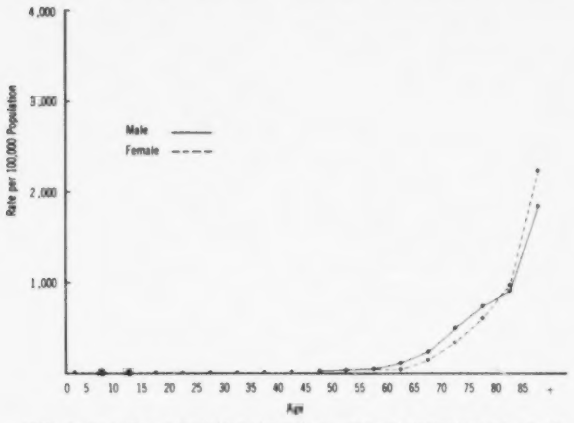
Cerebrovascular diseases are much more frequent among older age groups. As can be seen in Figure 2.10, mortality rates specific to these conditions begin a marked rise above age 55.

The historic pattern of cerebrovascular disease death rates has been one of strong variation (Figure 2.11). During the time period 1900-1949, the rates in Michigan ranged from a low of 83.9 in 1902 to a high of 110.0 eight years later. The national high and low for the years 1900-1948 are 108.6 in 1904 and 84.1 in 1933.

Michigan was below national rates from 1900 through 1970 but was generally, and sometimes markedly, higher from 1908 to 1938. Michigan and national rates were very similar over the next eight years, whereupon the Michigan rate slipped below the national rate and has remained there since 1946.

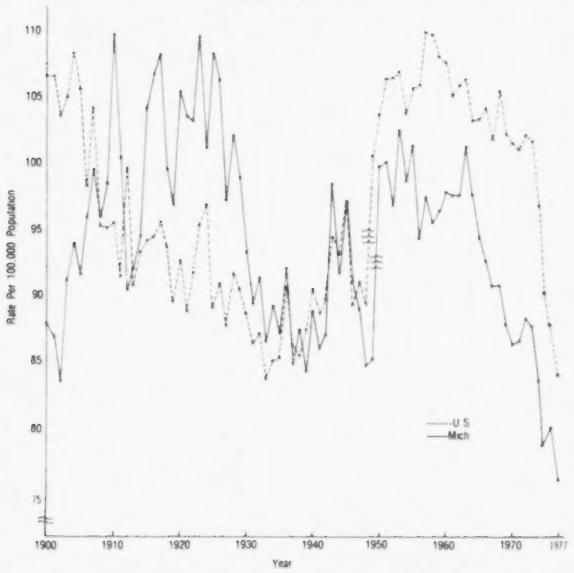
The 6th revision to ICDA cause of death coding was adopted in the year 1949 nationally and 1950 in Michigan. This resulted in a lack of direct comparability between rates prior to these dates and rates after adoption. Since the significant change in coding procedures in 1950. the cerebrovascular disease death rate in Michigan has ranged from 102.8 in 1958 to 74.7 in 1977. Recent rates over the last twelve years have shown a clear downward tendency both nationally and in Michigan. In 1977, the Michigan rate was 11.5 percent lower than the provisional United States rate of 84.4 (Figure 2.11).

FIGURE 2.10—Cerebrovascular Disease Death Rates by Age and Sex, Michigan Residents, 1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some specified cause of death, differences in scale may be encountered.

FIGURE 2.11—Cerebrovascular Disease Death Rates, Michigan and United States Residents,[1] 1900-1977[2]



[1]National rates are from death registration states for 1900-1932 and the United States for 1933-1977. United States rate for 1977 is provisional.

The comparability of cerebrovascular disease death rates from the 5th revision of ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be 1.16. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan Statistics. The comparability of cerebrovascular disease death rates through the 6th, 7th, and 8th revisions (1949 to date nationally and 1950 to date in Michigan) is high.

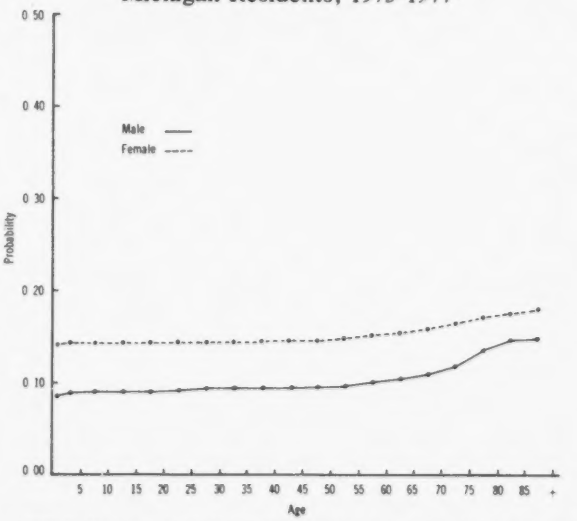
Acute but ill-defined cerebrovascular disease was most frequently given as the type of cerebrovascular disease causing death (2,421 deaths). Second in frequency was cerebral thrombosis which caused 1,774 deaths in 1977. These two cause of death categories comprises 61.5 percent of all stroke deaths. Generalized ischemic cerebrovascular disease and cerebral hemorrhage are the 3rd and 4th most frequent conditions causing these deaths. Together, the top four categories of cerebrovascular disease deaths accounted for 91.3 percent of all such deaths in Michigan (Table 2.14).

TABLE 2.14—Deaths Due to Cerebrovascular Disease by Detailed Cause, Michigan Residents, 1977

ICDA LIST NO.	CAUSE OF DEATH	NO. OF DEATHS	PER-CENT
436	Acute Ill-Defined Cerebrovascular Disease	2,421	35.5
433	Cerebral Thrombosis	1,774	26.0
437	Generalized Ischemic Cerebrovascular Disease	1,163	17.1
431	Cerebral Hemorrhage	864	12.7
430	Subarachnoid Hemorrhage	343	5.0
438	Other and Ill-Defined Cerebrovascular Disease	125	1.8
432	Occlusion of Precerebral Arteries	94	1.4
434	Cerebral Embolism	31	0.5
435	Transient Cerebral Ischemia	3	0.0
	TOTAL	6,818	100.0

At birth, a Michigan male faces a 0.085 chance of dying from cerebrovascular disease while the probability associated with a female at birth is 0.138, based upon the mortality experience of 1975 through 1977 in Michigan. Females are consistently more likely to die from this cause than males through all age intervals, according to the 1975-1977 data (Figure 2.12). This results primarily from the higher risks of competing causes for males. At age 60 male chances start rising appreciably with advancing age, reaching 0.132 by age 85. Female data reveals a similar increasing tendency later in life, though it starts at somewhat older ages and displays slower acceleration. The peak probability for females was 0.175 for the age interval 85 and over.

FIGURE 2.12—Probability of Eventually Dying from Cerebrovascular Disease by Age and Sex, Michigan Residents, 1975-1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

ACCIDENTS

About 5.3 percent of all Michigan resident deaths were the results of accidents. Of the total 3,945 accidental deaths, 2,700 were to males while 1,245 were to females.

The median age at death among accident victims was 33 years (Table 2.15). Median age among males was 30, thirteen years lower than the 43 year median for females. This differential is predominantly traceable to the relatively large number of accidental deaths for white males in the younger age intervals. The median age of accidental deaths for white males was 29 years compared to 47 years for white females. The median age for other than white males was 35 years, 4 years higher than for other than white females.

Accidental deaths among white males were especially concentrated in the 15-19 and 20-24 age ranges. These two age groups accounted for 31.3 percent of white male accidental deaths compared to less than 20 percent for all other race/sex categories.

The high white female median age at death for deaths due to accidents in 1977 can be attributed to the relatively even distribution of white female deaths across all age groups. The number of deaths for all other race and sex groups tapered off in the older age groups. This is related to the relatively large number of white females in these older age intervals. The other than white female median age was lower than the other than white male median because of the sharper fall off of other than white female accidental deaths in the higher age intervals.

The death rate as the result of accidents for males is more than twice as high as that for females. Male accidental death rates are greater than those for females for all age groups below the age of 85. The differential between male and female rates is greatest

TABLE 2.15—Deaths Due to Accidents by Age, Race, and Sex, Michigan Residents, 1977

	ALL RACES			WHITE			ALL OTHER[1]		
AGE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1 Year	43	21	22	31	14	17	12	7	5
1-4 Years	141	81	60	110	64	46	31	17	14
5-9 Years	145	81	64	107	57	50	38	24	14
10-14 Years	162	112	50	137	94	43	25	18	7
15-19 Years	542	397	145	512	374	138	30	23	7
20-24 Years	488	395	93	440	359	81	48	36	12
25-29 Years	328	257	71	293	236	57	35	21	14
30-34 Years	210	167	43	170	138	32	40	29	11
35-39 Years	174	132	42	136	102	34	38	30	8
40-44 Years	171	123	48	139	101	38	32	22	10
45-49 Years	156	121	35	135	104	31	21	17	4
50-54 Years	187	131	56	150	103	47	37	28	9
55-59 Years	153	102	51	129	84	45	24	18	6
60-64 Years	175	124	51	151	107	44	24	17	7
65-69 Years	179	118	61	157	100	57	22	18	4
70-74 Years	175	97	78	154	83	71	21	14	7
75-79 Years	162	92	70	148	81	67	14	11	3
80-84 Years	145	79	66	139	76	63	6	3	3
85-89 Years	126	48	78	123	47	76	3	1	2
90 and Over	80	20	60	78	20	58	2	—	2
Not Stated	3	2	1	2	1	1	1	1	—
Total	3,945	2,700	1,245	3,441	2,345	1,096	504	355	149
Median Age	33	30	43	33	29	47	34	35	31

[1] All Other includes race not stated.

at age 20-24 and 25-29. In these age groups male rates are 4.5 and 4.9 times corresponding female rates, respectively (Table 2.16).

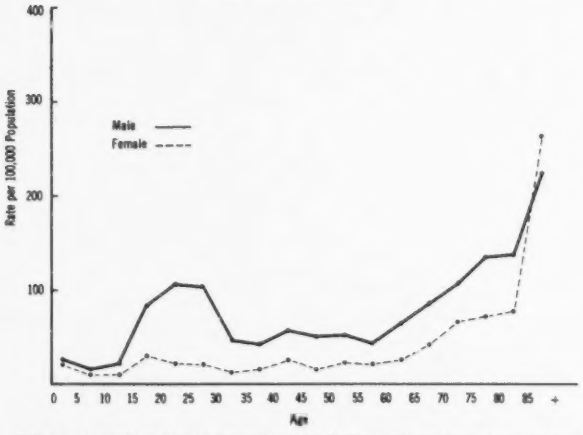
The mortality rates contained in Table 2.16 are displayed graphically in Figure 2.13. Mortality rates rose sharply for both sexes in the 15-19 age group.

TABLE 2.16—Accident Death Rates by Age and Sex, Michigan Residents, 1977

AGE	TOTAL	MALE	FEMALE
All Ages	43.2	60.1	26.9
0-4 Years	26.3	28.5	23.9
5-9 Years	16.5	18.1	14.9
10-14 Years	17.1	23.3	10.7
15-19 Years	57.3	84.4	30.6
20-24 Years	64.6	108.2	23.8
25-29 Years	56.6	104.1	21.4
30-34 Years	31.1	47.9	13.1
35-39 Years	33.7	47.3	17.7
40-44 Years	43.8	59.5	26.1
45-49 Years	33.0	50.0	15.2
50-54 Years	35.7	51.0	21.0
55-59 Years	32.2	44.7	20.7
60-64 Years	45.1	66.2	25.4
65-69 Years	62.7	88.4	40.2
70-74 Years	84.5	107.6	66.6
75-79 Years	97.1	136.9	70.2
80-84 Years	102.7	139.5	78.1
85 and Over	250.3	225.7	264.6

While the female rate dropped off in age group 20-24 and remained fairly stable through the 60-64 year age interval, the male rate continued to rise in age group 20-24 and remained high in the 25-29 age group before dropping off through age group 55-59. Mortality rates increased sharply in the post-64 age groups, reaching their peak in the 85 and over age interval. The differential between the sexes was reduced to less than two to one in the age groups past age 69 years.

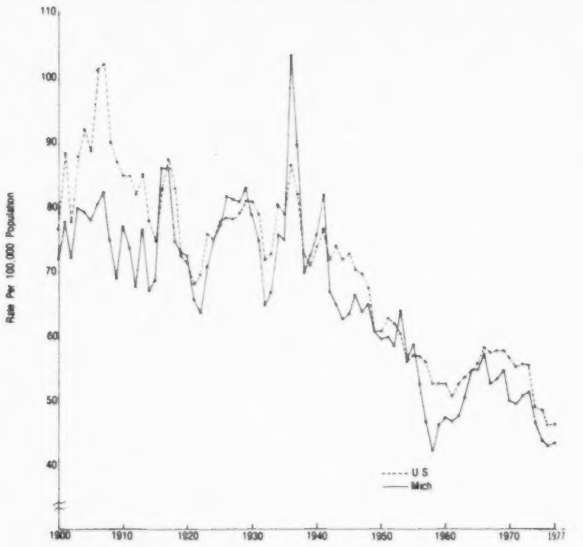
FIGURE 2.13—Accident Death Rates by Age and Sex, Michigan Residents, 1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

Michigan's accidental death rate in 1900 was 71.9. The lowest rate observed in the last 78 years through 1977 was 42.0 in 1950. The highest rate over this time period was in 1936 when 103.1 persons per 100,000 died from accidental causes. National rates have varied from 101.8 in 1907 to 45.5 in 1976. Michigan's rates have been below national rates fairly consistently since 1900. The last time the Michigan rate was above the United States rate was in 1955. The accidental death rate for Michigan in 1977 was 43.2, 7.7 percent below the provisional national rate of 46.8 (Figure 2.14).

FIGURE 2.14—Accident Death Rates, Michigan and United States Residents,[1] 1900-1977[2]



[1]National rates are from death registration states for 1900-1932 and the United States for 1933-1977. U. S. rate for 1977 is provisional.

[2]Accidental death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

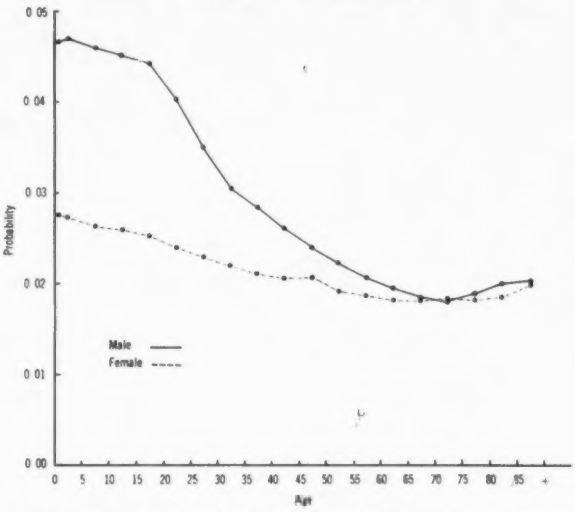
Motor vehicle accidents accounted for 1,960 deaths or 49.7 percent of all accidental deaths in 1977. Accidental falls were the second most frequent type of accidental deaths. This cause of death resulted in 564 deaths in 1977. Accidents caused by fire, accidental drownings, and accidents mainly of the industrial-type were third, fourth and fifth in frequency causing 295, 238 and 221 deaths respectively. Deaths resulting from accidents caused by fire increased 27 percent in 1977 while deaths from mainly industrial-type accidents increased 37 percent. The five major types of accidents accounted for 83.1 percent of all accidental deaths.

TABLE 2.17—Accidental Deaths by Type of Accidents, Michigan Residents, 1977

ICDA LIST NO.	TYPE OF ACCIDENT	NO. OF DEATHS	PER-CENT
E810-E819	Motor Vehicle Traffic Accidents	1,960	49.7
E880-E887	Accidental Falls	564	14.3
E890-E899	Accidents Caused by Fire and Flames	295	7.5
E910	Accidental Drowning and Submersion	238	6.0
E916-E921, E923-E928	Accidents Mainly of Industrial Type	221	5.6
E911-E912	Inhalation and Ingestion of Food Causing Obstruction	105	2.7
E913-E915, E929	Other Accidents	72	1.8
E870-E877	Accidental Poisoning by Gases and Vapors	69	1.7
E900-E909	Accidents Due to Natural and Environmental Factors	69	1.7
E922	Accident Caused by Firearm Missile	60	1.5
E840-E845	Air and Space Transport Accidents	59	1.5
E850-E859	Accidental Poisonings by Drugs and Medicaments	58	1.5
E930-E936	Surgical and Medical Complications and Misadventures	44	1.1
E820-E823	Motor Vehicle Non-Traffic Accidents	33	0.8
E830-E838	Water Transport Accidents	33	0.8
E860-E869	Accidental Poisonings by Other Solid or Liquid Substances	29	0.7
E940-E949	Late Effects of Accidental Injury	26	0.7
E800-E807	Railway Accidents	8	0.2
E825-E827	Other Road Vehicle Accidents	2	0.1
	TOTAL	3,945	99.9

It can be seen from Figure 2.15 that the risk of suffering accidental death is greater in the younger age groups than later in life. The probability of eventually dying from accidental causes is 0.047 for males and 0.028 for females at birth, according to Michigan mortality data from the years 1975 through 1977. Male probabilities by age continue to be much higher than females to about age 60. Male probabilities decline rather rapidly while those for females decline only slightly. At ages 65-74, male and female probabilities are about equal. The chance of accidental death increases in the 80-84 and 85 and over age intervals.

FIGURE 2.15—Probability of Eventually Dying from Accidental Causes by Age and Sex, Michigan Residents, 1975-1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

INFLUENZA AND PNEUMONIA

One of every 45 deaths that occurred to Michigan residents in 1977 was due to influenza and pneumonia. There were a total of 1,660 such deaths of which 963 were male and 697 were female.

The overall median age of death for those dying from influenza and pneumonia was 78 in 1977 (Table 2.18). This is well above the median age for all deaths of 71 years. The median age at death for white males was 77 and for white females 82 years. Influenza and pneumonia deaths for other than white persons occurred at earlier ages; the median age at death was 62 for other than white males and 64 for other than white females.

The influenza and pneumonia death rate was

TABLE 2.18—Deaths Due to Influenza and Pneumonia by Age, Race, and Sex, Michigan Residents, 1977

	ALL RACES			WHITE			ALL OTHER[1]		
AGE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1 Year	57	34	23	41	27	14	16	7	9
1-4 Years	8	4	4	5	3	2	3	1	2
5-9 Years	2	1	1	1	—	1	1	1	—
10-14 Years	9	5	4	9	5	4	—	—	—
15-19 Years	14	13	1	9	8	1	5	5	—
20-24 Years	19	12	7	13	7	6	6	5	1
25-29 Years	8	3	5	6	3	3	2	—	2
30-34 Years	4	2	2	2	—	2	2	2	—
35-39 Years	20	12	8	12	6	6	8	6	2
40-44 Years	28	19	9	19	15	4	9	4	5
45-49 Years	40	27	13	29	19	10	11	8	3
50-54 Years	47	37	10	32	24	8	15	13	2
55-59 Years	67	44	23	52	33	19	15	11	4
60-64 Years	102	71	31	80	57	23	22	14	8
65-69 Years	122	74	48	108	66	42	14	8	6
70-74 Years	168	116	52	148	101	47	20	15	5
75-79 Years	214	140	74	185	122	63	29	18	11
80-84 Years	292	158	134	277	148	129	15	10	5
85-89 Years	255	119	136	245	113	132	10	6	4
90 and Over	183	71	112	178	70	108	5	1	4
Not Stated	1	1	—	1	1	—	—	—	—
Total	1,660	963	697	1,452	828	624	208	135	73
Median Age	78	75	81	79	77	82	63	62	64

[1] All Other includes race not stated.

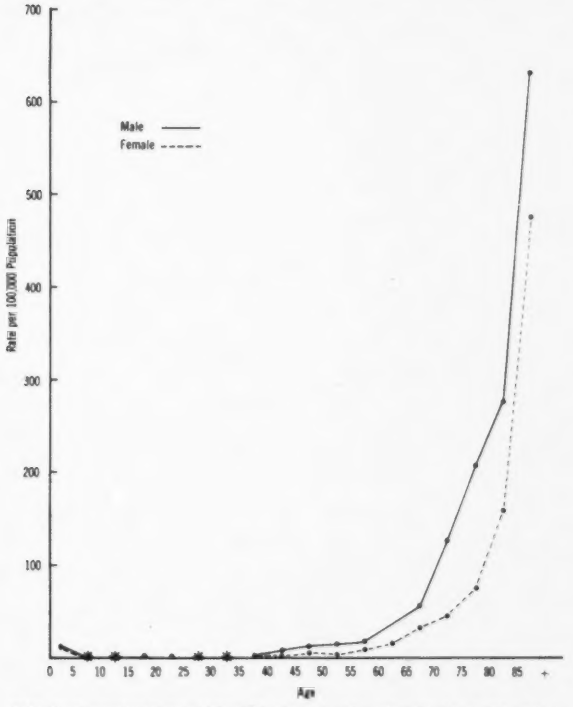
higher for males than females in 1977. The overall rate was 18.2 while males and females had rates of 21.4 and 15.0 respectively. The age-specific rates for males were above those for females in all age groups with a sufficient number of deaths for rate calculation (Table 2.19).

The rate of death due to influenza and pneumonia for the 0-4 year age group is the highest rate observed for the younger ages. The rate for this group was not exceeded by any age group below ages 55-59. At ages 55-59 the strong association between influenza and pneumonia death and advancing age becomes apparent. Rates from that point roughly double with each successive five year interval. The higher frequency of male deaths from influenza and pneumonia is most pronounced in the highest age intervals. For every 100,000 persons, there are 134 more male deaths than female deaths from influenza and pneumonia at ages 75-79, 121 more male deaths at ages 80-84, and 155 more male deaths at age 85 and over (Figure 2.16).

TABLE 2.19—Influenza and Pneumonia Death Rates by Age and Sex, Michigan Residents, 1977

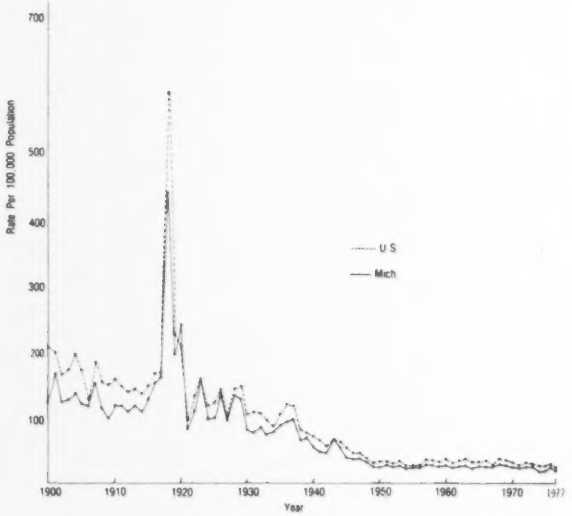
AGE	TOTAL	MALE	FEMALE
All Ages	18.2	21.4	15.0
0-4 Years	9.3	10.6	7.9
5-9 Years	*	*	*
10-14 Years	1.0	1.0	*
15-19 Years	1.5	2.8	*
20-24 Years	2.5	3.3	1.8
25-29 Years	1.4	*	1.5
30-34 Years	*	*	*
35-39 Years	3.9	4.3	3.4
40-44 Years	7.2	9.2	4.9
45-49 Years	8.5	11.2	5.6
50-54 Years	9.0	14.4	3.7
55-59 Years	14.1	19.3	9.3
60-64 Years	26.3	37.9	15.4
65-69 Years	42.8	55.4	31.6
70-74 Years	81.1	128.7	44.4
75-79 Years	128.2	208.4	74.2
80-84 Years	206.9	279.1	158.5
85 and Over	532.3	630.5	475.5

FIGURE 2.16—Influenza and Pneumonia Death Rates by Age and Sex, Michigan Residents, 1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

FIGURE 2.17—Influenza and Pneumonia Death Rates, Michigan and United States Residents,[1] 1900-1977[2]



[1]National rates are from death registration states for 1900-1932 and the United States for 1933-1977. U. S. rate for 1977 is provisional.

[2]Influenza and pneumonia death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

The pattern of influenza and pneumonia death rates has been generally downward since 1900 both nationally and in Michigan (Figure 2.17). The annual rate is seen to be quite erratic from 1900 through 1940 or 1945. Since that time, the rate has been stable in terms of year to year variation as well as trendline.

Michigan's rate of death due to this cause has been below the national rate almost without exception throughout this century. In 1900, the Michigan rate was 120.3 while the national statistic was 202.1. The peak year for both was 1917 when the United States and the Michigan rates were 588.5 and 439.0 respectively. Century low rates of 18.2 for Michigan and an estimated 23.1 for the nation were recorded in 1977.

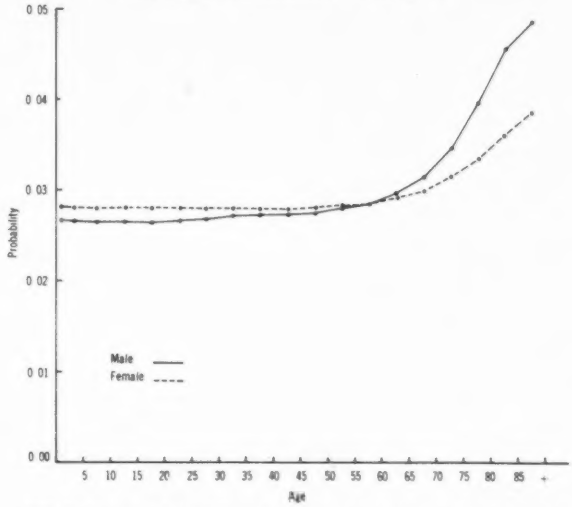
Pneumonia unspecified caused 1,096 or 66.0 percent of all Michigan influenza and pneumonia deaths in 1977. Another 20.7 percent of these deaths were due to bronchipneumonia unspecified. Combined with the 113 deaths due to pneumococcal pneumonia, the top three type of influenza and pneumonia deaths account for 93.5 percent of all such deaths. Influenza was directly involved in 1.3 percent of all influenza and pneumonia deaths in 1977, compared to 14.0 percent in 1976 and 7.4 percent in 1975.

TABLE 2.20—Influenza and Pneumonia Deaths by Detailed Cause, Michigan Residents, 1977

ICDA LIST NO.	CAUSE OF DEATH	NO. OF DEATHS	PER-CENT
486	Pneumonia Unspecified	1,096	66.0
485	Bronchopneumonia Unspecified	343	20.7
481	Pneumococcal Pneumonia	113	6.8
480	Viral Pneumonia	34	2.0
482	Other Bacterial Pneumonia	32	1.9
484	Acute Interstitial Pneumonia	13	0.8
471	Influenza with Pneumonia	9	0.5
470	Influenza Unqualified	8	0.5
483	Pneumonia Due to Other Specified Organisms	8	0.5
472	Influenza with Other Respiratory Manifestations	4	0.2
	TOTAL	1,660	99.9

The likelihood of eventual death being caused by influenza and pneumonia is a stable 0.028 for females from birth through age 45 and 0.029 through age 60. Male chances vary between 0.027 and 0.029 from birth through age 60. The calculated probabilities for each sex begin a slow increase after age 45, with male chances rising more rapidly than those for females. By ages 85 and over, the chances of eventually dying from influenza and pneumonia are 0.049 for males and 0.039 for females, based on the Michigan mortality experience of 1975-1977 (Figure 2.18).

FIGURE 2.18—Probability of Eventually Dying from Influenza and Pneumonia by Age and Sex, Michigan Residents, 1975-1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

DIABETES MELLITUS

In 1977, diabetes mellitus caused the deaths of 1,615 Michigan residents. Deaths to females amounted to 931 or 58 percent of all diabetes mellitus deaths. There were 684 male deaths in 1977.

The median age of death for persons dying from diabetes mellitus was 73 years (Table 2.21), just above the median age of all deaths (71 years). Males dying from this disease were slightly younger than females for both white and other than white races. The white male median was 71 years compared to 77 for the white females. The other than white male median was 67 and that for the other than white female was 69 years.

The diabetes mellitus death rate was 17.7 in 1977 (Table 2.22). The rate for female deaths due to this cause was 20.1, about 32 percent higher than the rate of 15.2 for males. Age-specific diabetes death rates for persons under age 70 are similar for both sexes. While male rates are above those for females four of six times for the age intervals calculated prior to age 65, the differences are slight. Female rates are above those of males from age interval 70-74 through the last age group. In these last four age groups, female rates range from 0.2 percent above male rates for age group 70-74 to 44.5 percent higher for the age group 85 and over. There were 117 more female than male deaths per 100,000 persons in the 85 and over age group.

Figure 2.19 contains a graphic display of the age-specific mortality rates in Table 2.22. This graph reveals the strong association between diabetes caused death and advancing age. Prior to age 45 the death rates associated with this cause are relatively low. From the 45-49 year age group onward, the diabetes death rate progressively increased, reaching a peak in the 85 and over age group.

The rate of death due to diabetes mellitus for males aged 65-69 is 6.8 times higher than the rate for males 45-49. The female diabetes mellitus death rate for

TABLE 2.22—Diabetes Mellitus Death Rates by Age and Sex, Michigan Residents, 1977

AGE	TOTAL	MALE	FEMALE
All Ages	17.7	15.2	20.1
0-4 Years	•	•	•
5-9 Years	•	•	•
10-14 Years	•	•	•
15-19 Years	•	•	•
20-24 Years	•	•	•
25-29 Years	1.9	2.4	1.5
30-34 Years	1.5	1.7	•
35-39 Years	4.1	5.4	2.5
40-44 Years	4.6	3.9	5.4
45-49 Years	9.3	11.6	7.0
50-54 Years	12.0	13.2	10.9
55-59 Years	23.6	27.6	19.9
60-64 Years	40.9	38.5	43.3
65-69 Years	71.1	79.4	63.9
70-74 Years	114.4	114.3	114.5
75-79 Years	151.6	134.0	163.4
80-84 Years	175.7	151.9	191.6
85 and Over	280.7	219.0	316.4

TABLE 2.21—Deaths Due to Diabetes Mellitus by Age, Race, and Sex, Michigan Residents, 1977

AGE	ALL RACES			WHITE			ALL OTHER[1]		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1 Year	2	—	2	2	—	2	—	—	—
1-4 Years	—	—	—	—	—	—	—	—	—
5-9 Years	—	—	—	—	—	—	—	—	—
10-14 Years	—	—	—	—	—	—	—	—	—
15-19 Years	1	1	—	1	1	—	—	—	—
20-24 Years	2	—	2	1	—	1	1	—	1
25-29 Years	11	6	5	7	4	3	4	2	2
30-34 Years	10	6	4	6	4	2	4	2	2
35-39 Years	21	15	6	17	12	5	4	3	1
40-44 Years	18	8	10	16	8	8	2	—	2
45-49 Years	44	28	16	36	25	11	8	3	5
50-54 Years	63	34	29	53	29	24	10	5	5
55-59 Years	112	63	49	83	49	34	29	14	15
60-64 Years	159	72	87	130	61	69	29	11	18
65-69 Years	203	106	97	163	84	79	40	22	18
70-74 Years	237	103	134	213	95	118	24	8	16
75-79 Years	253	90	163	218	77	141	35	13	22
80-84 Years	248	86	162	229	79	150	19	7	12
85-89 Years	159	45	114	148	39	109	11	6	5
90 and Over	72	21	51	66	19	47	6	2	4
Not Stated	—	—	—	—	—	—	—	—	—
Total	1,615	684	931	1,389	586	803	226	98	128
Median Age	73	70	76	74	71	77	68	67	69

[1] All Other includes race not stated.

ages 65-69 is 9.1 times higher than for 45-49 year old women. The age-specific mortality rates for the 85 and over age interval are 2.8 and 5.0 times the rates observed for 65-69 year old males and females respectively.

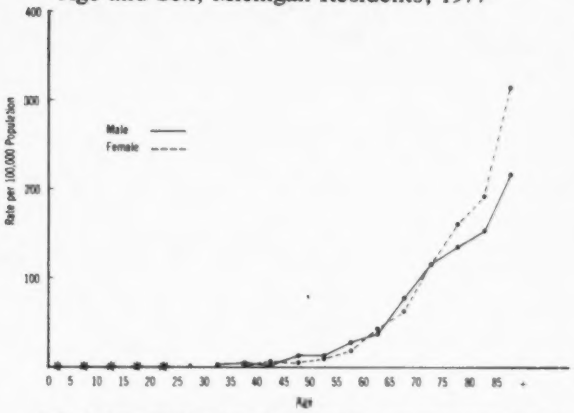
Diabetes mellitus death rates in Michigan rose steadily from a low of 9.3 in 1900 to a peak of 29.7 in 1949 (Figure 2.20). Adoption of the 6th revision of the International Classification of Diseases in 1950 caused a significant change in Michigan diabetes death rates. Over the last twenty-eight years the Michigan rate has ranged from a low of 17.7 in 1977 to a high of 26.5 in 1968. The national ranges in this century are from 11.0 in 1900 to 18.3 in 1948 (the year of the adoption of the 6th revision nationally was 1949), and from 15.5 in 1955 and 1977 (provisionally) to 19.2 in 1968.

The national diabetes mellitus death rate was generally above the Michigan rate for the first 25 or so years in this century. Michigan's rate of death due to this cause gradually surpassed national rates over the next 15 years. Since 1942, the Michigan rate has been above that of the nation. Through the 1960's the differential between Michigan and the United States figures became quite large. This has only recently started to diminish. In 1977 the United States diabetes death rate was a provisional 15.5. Michigan's rate (17.7) was 14 percent above that statistic.

In 1977 90.2 percent of all diabetes mellitus deaths did not involve acidosis or coma. There were 158 deaths in 1977, where acidosis or coma was mentioned with the disease. These are deaths where a diabetic crisis was involved (Table 2.23).

At birth, the probability of eventual death due to diabetes mellitus is 0.018 for males and 0.031 for females (Figure 2.21). Death from diabetes mellitus has a pattern of gradually increasing probability from birth to ages 65-70 for males and to age 60-65 for females. Beyond these ages both sexes face decreasing chances of dying from diabetes mellitus. Both males and females are less likely to die from this cause at ages 85 and over than when they were born. The female probabilities are above those of males throughout life, based on mortality data from Michigan in the years of 1975 through 1977.

FIGURE 2.19—Diabetes Mellitus Death Rates by Age and Sex, Michigan Residents, 1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

FIGURE 2.20—Diabetes Mellitus Death Rates, Michigan and United States,[1] 1900-1977[2]

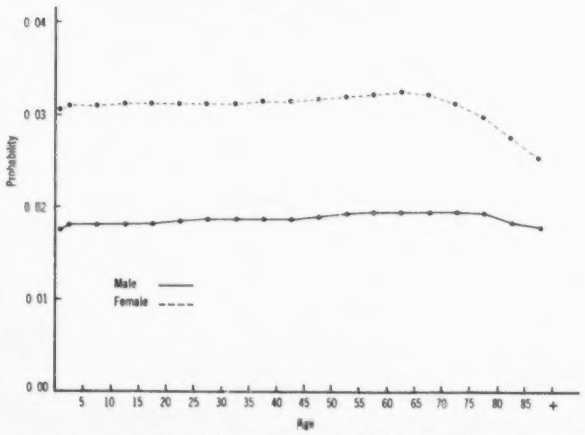
[1]National rates are from death registration states for 1900-1932 and the United States for 1933-1977. U. S. rate for 1977 is provisional.

[2]The comparability of diabetes mellitus death rates from the 5th revision of the ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be .55. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of diabetes mellitus disease death rates through the 6th, 7th, and 8th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates of adoption can be made but detailed study requires special consideration. See Technical Notes.

TABLE 2.23—Diabetes Mellitus Deaths by Presence of Acidosis or Coma, Michigan Residents, 1977

ICDA LIST NO.	CAUSE OF DEATH	NO. OF DEATHS	PERCENT
250.0	With Mention of Acidosis or Coma	158	9.8
250.9	Without Mention of Acidosis or Coma	1,457	90.2
	TOTAL	1,615	100.0

FIGURE 2.21—Probability of Eventually Dying from Diabetes Mellitus by Age and Sex, Michigan Residents, 1975-1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

CIRRHOSIS OF THE LIVER

The 7th leading cause of Michigan resident deaths in 1977 was cirrhosis of the liver. This condition caused 1,356 deaths. There were 912 male and 444 female cirrhosis of the liver deaths in 1977.

The median age at death for deaths due to cirrhosis of the liver was 14 years below the median of deaths from all causes (Table 2.24). There was little difference between the median ages of each sex. The median for white males and females was 59 years. Other than white male and female deaths had median ages of 50 and 48 years respectively.

The differential between male and female mortality due to cirrhosis of the liver in 1977 is quite large, as can be seen in Table 2.25 and Figure 2.22. Also apparent is the relative infrequency of death from this cause prior to age 35. While the female rate remains relatively stable between age groups 40-44 and 75-79, the male rate rises to a peak in the 65-69 age group, remains near the peak in the 70-74 age group and then drops off.

Cirrhosis of the liver was the cause of death for 7.9 of every 100,000 Michigan residents in 1900. Mortality rates specific to this cause of death rose to a peak of 13.1 in 1916. The relative frequency of cirrhosis of the liver deaths then fell sharply, dropping to 7.4 in 1919. The Michigan rates held stable from this point to until 1936 when it began increasing slowly. A rate of 12.4 was reached by 1948. The statistics shown in Figure 2.23 after 1948 are not comparable with preceding years, due to a revision of cause of death determination. By isolating the period 1949 to 1977, this problem can be ignored. The Michigan rate increased between 1949 and 1972 and has been decreasing since 1972.

The United States rate of death due to cirrhosis of the liver were well above the Michigan rate early in this century. The highest national rate observed during the 1900-1948 period occurred in 1907. Michigan rates were consistently similar to national rates from about 1916 through 1948. Following the revision of

TABLE 2.25—Cirrhosis of the Liver Death Rates by Age and Sex, Michigan Residents, 1977

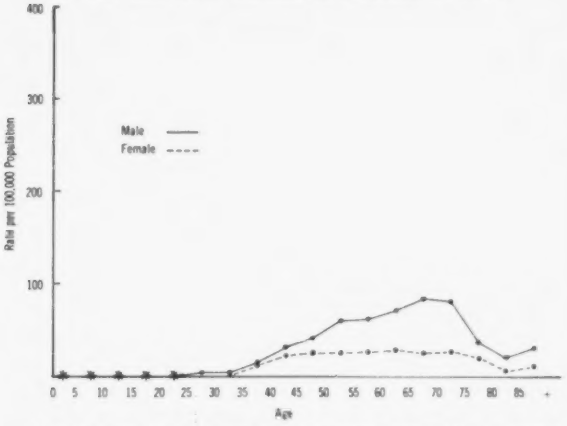
AGE	TOTAL	MALE	FEMALE
All Ages	14.9	20.3	9.6
0-4 Years	•	•	•
5-9 Years	•	•	•
10-14 Years	•	•	•
15-19 Years	•	•	•
20-24 Years	0.7	•	•
25-29 Years	3.6	6.9	•
30-34 Years	5.8	6.6	4.9
35-39 Years	13.2	15.4	10.6
40-44 Years	26.4	31.0	21.2
45-49 Years	32.6	40.1	24.8
50-54 Years	42.2	60.0	25.1
55-59 Years	44.0	62.3	27.2
60-64 Years	48.9	71.0	28.3
65-69 Years	54.7	85.4	27.7
70-74 Years	51.2	81.0	28.2
75-79 Years	27.6	38.7	20.1
80-84 Years	14.2	21.2	9.5
85 and Over	19.4	33.2	11.5

TABLE 2.24—Deaths Due to Cirrhosis of the Liver by Age, Race, and Sex, Michigan Residents, 1977

AGE	ALL RACES			WHITE			ALL OTHER[1]		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1 Year	1	1	—	—	—	—	1	1	—
1-4 Years	1	1	—	—	—	—	1	1	—
5-9 Years	—	—	—	—	—	—	—	—	—
10-14 Years	—	—	—	—	—	—	—	—	—
15-19 Years	—	—	—	—	—	—	—	—	—
20-24 Years	5	2	3	2	1	1	3	1	2
25-29 Years	21	17	4	10	10	—	11	7	4
30-34 Years	39	23	16	19	13	6	20	10	10
35-39 Years	68	43	25	34	23	11	34	20	14
40-44 Years	103	64	39	64	41	23	39	23	16
45-49 Years	154	97	57	98	60	38	56	37	19
50-54 Years	221	154	67	165	120	45	56	34	22
55-59 Years	209	142	67	166	111	55	43	31	12
60-64 Years	190	133	57	158	112	46	32	21	11
65-69 Years	156	114	42	140	103	37	16	11	5
70-74 Years	106	73	33	104	72	32	2	1	1
75-79 Years	46	26	20	42	24	18	4	2	2
80-84 Years	20	12	8	18	10	8	2	2	—
85-89 Years	12	8	4	11	7	4	1	1	—
90 and Over	4	2	2	4	2	2	—	—	—
Not Stated	—	—	—	—	—	—	—	—	—
Total	1,356	912	444	1,035	709	326	321	203	118
Median Age	57	57	56	59	59	59	50	50	48

[1] All Other includes race not stated.

FIGURE 2.22—Cirrhosis of the Liver Death Rates by Age and Sex, Michigan Residents, 1977[1]

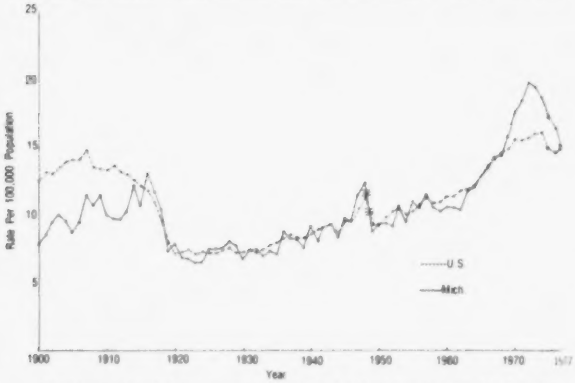


[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some specified cause of death, differences in scale may be encountered.

ICDA coding procedures in 1949, the rates for both Michigan and the nation dropped slightly. The Michigan rate was generally at or below the national rate through 1968. Between 1968 and 1972, the Michigan cause-specific rate rose rapidly above the national rate. The sharp drop in the Michigan rate since 1972 has brought the statistic for the state closer to the national figure. In 1977, the Michigan cirrhosis of the liver death rate was 14.9 compared to an estimated 14.4 for the nation.

The contributing factor of alcoholism was associated with 439 or 32.4 percent of the cirrhosis of the liver deaths in 1977. There were 917 deaths due to this cause with no mention of alcoholism (Table 2.26).

FIGURE 2.23—Cirrhosis of the Liver Death Rates, Michigan and United States Residents,[1] 1900-1977[2]



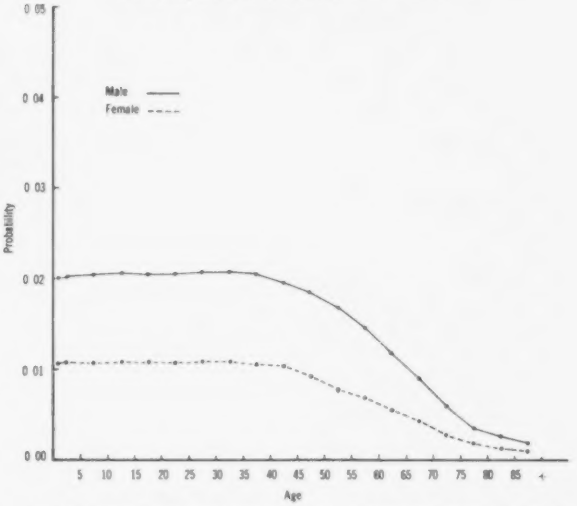
[1]National rates are from death registration states for 1900-1932 and the United States for 1933-1977; U. S. rate for 1977 is provisional.
The comparability of cirrhosis of the liver death rates from the 5th revision of the ICDA coding procedures with those of the 6th revision is considered weak. The comparability ratio is estimated to be .80. The 6th revision was adopted in 1949 for national cause-of-death statistics and in 1950 for Michigan statistics. The comparability of cirrhosis of the liver death rates through the 6th, 7th, and 8th revisions (1949 to date nationally and 1950 to date in Michigan) is high. General comparison before and after these dates of adoption can be made but detailed study require special consideration. See Technical Notes.

The probability of eventually dying from cirrhosis of the liver, based upon Michigan mortality data from the years 1975-1977, is displayed in Figure 2.24 by age and sex. This graph reveals that the risk associated with this condition is much greater for males than females. At birth, males demonstrate a probability of 0.020 as compared to 0.011 for females. Death from cirrhosis of the liver displays a nearly constant level of risk for both sexes from birth to ages 40 to 45, whereupon, the threat of death due to this condition diminishes with advancing age. By age 85, the risk indicated by the mortality data is 0.001 for females and 0.002 for males.

TABLE 2.26—Deaths Due to Cirrhosis of the Liver by Mention of Alcoholism, Michigan Residents, 1977

ICDA LIST NO.	CAUSE OF DEATH	NO. OF DEATHS	PERCENT
571.0	With Mention of Alcoholism	439	32.4
571.8, 571.9	Without Mention of Alcoholism	917	67.6
	TOTAL	1,356	100.0

FIGURE 2.24—Probability of Eventually Dying from Cirrhosis of the Liver by Age and Sex, Michigan Residents, 1975-1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

SUICIDE

There were a total of 1,280 suicides in 1977, making suicide the 8th leading cause of death. Deaths resulting from suicide were 74 percent male, with 952 male and 328 female deaths in 1977. About 91 percent of all suicide deaths were to white persons.

Approximately 50 percent of all suicide deaths were under the age of 40. The male median age of 38 was 7 years below that for females. White males and females had medians of 39 and 46 respectively. The 50th percentile of the other than white male age distribution was 30 and for other than white females, 31 years (Table 2.27).

The suicide death rate in 1977 was 14.0. Suicide by males had a relative frequency nearly triple that of females with rates of 21.2 and 7.1 respectively. Age-specific rates were higher for males than females across all age groups (Table 2.28). The greatest differential between males and females was observed in the 25-29 and 70-74 age groups, where the male rates were, respectively 4.3 and 5.3 times the female rates.

Suicide first becomes prevalent between the ages of 15 and 19. The age-specific mortality rates for suicide are displayed graphically in Figure 2.25. In 1977, male suicides were more frequent among men in their twenties and at ages over 70. The highest female rate was for the age group 45-49.

TABLE 2.28—Suicide Death Rates by Age and Sex, Michigan Residents, 1977

AGE	TOTAL	MALE	FEMALE
All Ages	14.0	21.2	7.1
0-4 Years	*	*	*
5-9 Years	*	*	*
10-14 Years	1.4	2.5	*
15-19 Years	10.7	16.8	4.6
20-24 Years	21.3	36.7	6.9
25-29 Years	28.3	50.7	11.7
30-34 Years	17.3	24.4	9.8
35-39 Years	15.9	24.0	6.3
40-44 Years	18.4	22.7	13.6
45-49 Years	19.3	21.5	16.9
50-54 Years	17.4	22.6	12.4
55-59 Years	19.8	28.1	12.2
60-64 Years	22.4	34.2	11.4
65-69 Years	23.1	35.2	12.5
70-74 Years	31.9	58.8	11.1
75-79 Years	23.4	50.6	*
80-84 Years	17.7	40.6	*
85 and Over	13.4	26.5	*

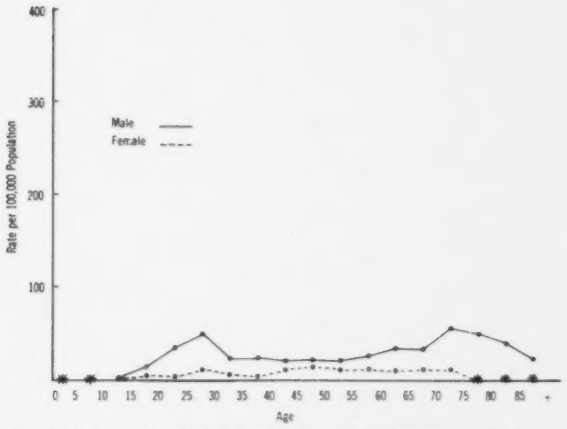
The suicide death rates of Michigan and the United States followed a cyclical path from 1900 to 1944. There were two complete cycles of rising then falling rates in that time period. The rates since 1943 held fairly stable for several years then began a slow increase in both Michigan and the United States. There has been strong similarity in both the trend and magnitude of Michigan and national rates in this century (Figure 2.26).

TABLE 2.27—Deaths Due to Suicide by Age, Race, and Sex, Michigan Residents, 1977

AGE	ALL RACES			WHITE			ALL OTHER[1]		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1 Year	—	—	—	—	—	—	—	—	—
1-4 Years	—	—	—	—	—	—	—	—	—
5-9 Years	—	—	—	—	—	—	—	—	—
10-14 Years	13	12	1	12	11	1	1	1	—
15-19 Years	101	79	22	96	76	20	5	3	2
20-24 Years	161	134	27	136	115	21	25	19	6
25-29 Years	164	125	39	137	104	33	27	21	6
30-34 Years	117	85	32	99	72	27	18	13	5
35-39 Years	82	67	15	77	62	15	5	5	—
40-44 Years	72	47	25	63	41	22	9	6	3
45-49 Years	91	52	39	87	49	38	4	3	1
50-54 Years	91	58	33	87	56	31	4	2	2
55-59 Years	94	64	30	88	58	30	6	6	—
60-64 Years	87	64	23	82	63	19	5	1	4
65-69 Years	66	47	19	63	44	19	3	3	—
70-74 Years	66	53	13	63	50	13	3	3	—
75-79 Years	39	34	5	38	33	5	1	1	—
80-84 Years	25	23	2	23	21	2	2	2	—
85-89 Years	7	4	3	7	4	3	—	—	—
90 and Over	4	4	—	4	4	—	—	—	—
Not Stated	—	—	—	—	—	—	—	—	—
Total	1,280	952	328	1,162	863	299	118	89	29
Median Age	40	38	45	42	39	46	30	30	31

[1] All Other includes race not stated.

FIGURE 2.25—Suicide Death Rates by Age and Sex, Michigan Residents, 1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

TABLE 2.29—Deaths Due to Suicide by Method, Michigan Residents, 1977

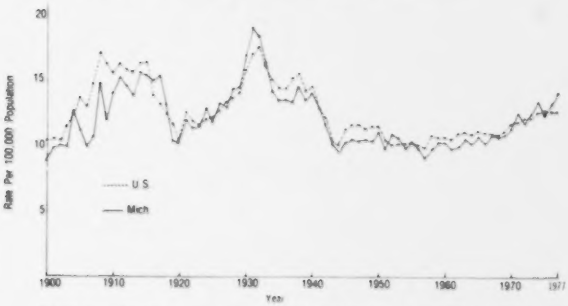
ICDA LIST NO.	CAUSE OF DEATH	NO. OF DEATHS	PERCENT
955	Suicide by Firearms and Explosives	683	53.4
953	Suicide by Hanging, Strangulation or Suffocation	190	14.8
952	Suicide Poisoning by Other Gases	169	13.2
950	Suicide Poisoning by Solid and Liquid Substances	163	12.7
957	Suicide by Jumping from High Place	26	2.0
954	Suicide by Submersion	19	1.5
958	Suicide by Other and Unspecified Means	14	1.1
956	Suicide by Cutting and Piercing Instruments	12	0.9
951	Suicide Poisoning by Gases in Domestic Use	3	0.2
959	Late Effect of Self-Inflicted Injury	1	0.1
	TOTAL	1,280	99.9

In 1900 the Michigan rate was 8.8, the lowest rate observed. The highest Michigan rate was 18.8 in 1931. National high and low rates were 17.4 in 1932 and 10.0 in 1944 and 1952. In 1977 the United States rate was an estimated 12.5, compared to the Michigan rate of 14.0.

Suicides in Michigan were predominately the result of one of four types of self-inflicted injury. Self-inflicted injury by firearms and explosives caused 687 deaths in 1977. Hanging, strangulation and suffocation resulted in 190 deaths. Self-inflicted poisoning by non-domestic gases resulted in 169 deaths. Combined with 163 deaths due to poisoning by solids and liquids, these four types of suicide accounted for 94.5 percent of all suicidal deaths to Michigan residents in 1977 (Table 2.29).

Using the Michigan mortality experience of 1975 through 1977, the chance of a male eventually dying from suicide is 0.016 at birth. The risk for females is 0.006. These probabilities hold relatively constant to age 25, then taper slowly with advancing age. By age 85, the probability of eventually dying from suicide is negligible (Figure 2.27).

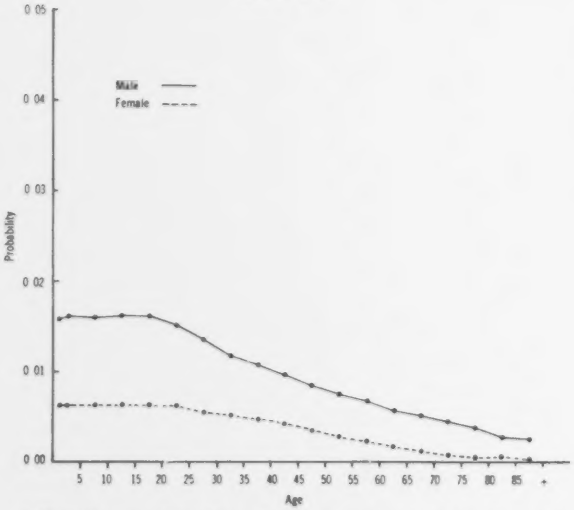
FIGURE 2.26—Suicide Death Rates, Michigan and United States Residents,[1] 1900-1977[2]



[1]National rates are from death registration states for 1900-1932 and the United States for 1933-1977. U. S. rate for 1977 is provisional.

[2]Suicide death rates since 1900 are suitable for general comparison over time but detailed study (such as time series) requires special consideration. See Technical Notes.

FIGURE 2.27—Probability of Eventually Dying from Suicide by Age and Sex, Michigan Residents, 1975-1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

ARTERIOSCLEROSIS

There were a total of 1,164 Michigan resident deaths attributed to arteriosclerosis in 1977. This cause was the 9th leading cause of death in the state. There were 475 male and 689 female deaths. Only 48 of the 1,164 total deaths were other than white persons.

The majority of the arteriosclerosis deaths were at advanced ages. The median age of all deaths resulting from this condition was 85. Male deaths were slightly younger than female deaths (Table 2.30). The center of the white male age distribution was 83 years, 3 years below that for white females. Black males dying from this disease in 1977 had a median age of 78. This statistic for black females was 79.

Arteriosclerosis resulted in 12.8 deaths per 100,000 Michigan residents in 1977. Female deaths resulting from this condition were relatively more frequent than for males with rates of 14.9 and 10.6 respectively (Table 2.31). Age-specific arteriosclerosis death rates were higher for males than females for the age groups 60-64 through 70-74 and lower for the age groups 80-84 and 85 and over.

Age-specific arteriosclerosis death rates observed among Michigan residents in 1977 were highest for those in the oldest age groups. The arteriosclerosis death rate rose sharply beyond age 75. Nearly seven of every 1,000 Michigan residents aged 85 and over died from this disease in 1977 (Figure 2.28).

TABLE 2.31—Arteriosclerosis Death Rates by Age and Sex, Michigan Residents, 1977

AGE	TOTAL	MALE	FEMALE
All Ages	12.8	10.6	14.9
0-34 Years	•	•	•
35-39 Years	•	•	•
40-44 Years	•	•	•
45-49 Years	•	•	•
50-54 Years	1.0	•	•
55-59 Years	1.5	•	•
60-64 Years	10.0	14.4	6.0
65-69 Years	14.7	17.2	12.5
70-74 Years	44.9	53.3	38.4
75-79 Years	97.1	110.1	88.2
80-84 Years	173.6	167.8	177.4
85 and Over	686.6	653.7	705.6

Inspection of arteriosclerosis death rates since 1900 is far less informative than the historical data of other causes of death. The classification of this disease has been significantly altered several times since the inception of the ICDA codes (see footnote of Figure 2.29). What can be seen in Figure 2.29 is a strong rise from 1900 to 1912. Michigan and national rates then stabilize and began declining through 1929. A coding revision then breaks comparability to 1930 rates. The arteriosclerosis death rates from 1930 to 1938 show no clear direction. The period 1939 to 1948 was again mixed. From 1949 to 1967 the national

TABLE 2.30—Deaths Due to Arteriosclerosis by Age, Race, and Sex, Michigan Residents, 1977

AGE	ALL RACES			WHITE			ALL OTHER[1]		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1 Year	—	—	—	—	—	—	—	—	—
1-4 Years	—	—	—	—	—	—	—	—	—
5-9 Years	—	—	—	—	—	—	—	—	—
10-14 Years	—	—	—	—	—	—	—	—	—
15-19 Years	—	—	—	—	—	—	—	—	—
20-24 Years	—	—	—	—	—	—	—	—	—
25-29 Years	—	—	—	—	—	—	—	—	—
30-34 Years	—	—	—	—	—	—	—	—	—
35-39 Years	—	—	—	—	—	—	—	—	—
40-44 Years	3	3	—	3	3	—	—	—	—
45-49 Years	2	2	—	2	2	—	—	—	—
50-54 Years	5	2	3	5	2	3	—	—	—
55-59 Years	7	4	3	6	4	2	1	—	1
60-64 Years	39	27	12	31	22	9	8	5	3
65-69 Years	42	23	19	39	21	18	3	2	1
70-74 Years	93	48	45	87	47	40	6	1	5
75-79 Years	162	74	88	154	71	83	8	3	5
80-84 Years	245	95	150	237	93	144	8	2	6
85-89 Years	272	114	158	265	108	157	7	6	1
90 and Over	293	83	210	287	82	205	6	1	5
Not Stated	1	—	1	—	—	—	1	—	1
Total	1,164	475	689	1,116	455	661	48	20	28
Median Age	85	83	86	85	83	86	78	78	79

[1] All Other includes race not stated.

FIGURE 2.28—Arteriosclerosis Death Rates by Age and Sex, Michigan Residents, 1977[1]

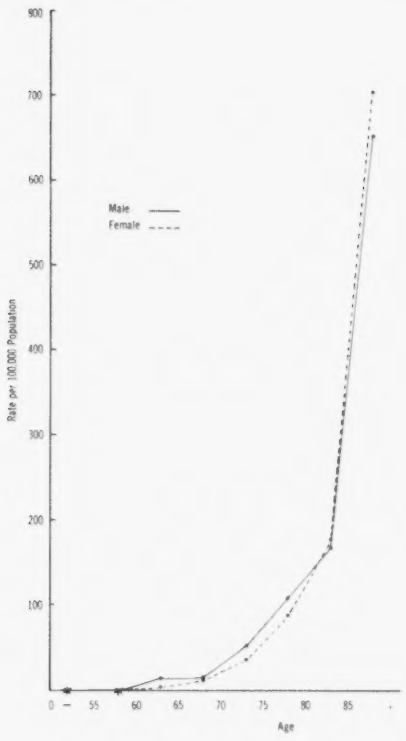


TABLE 2.32—Deaths Due to Arteriosclerosis by Detailed Cause, Michigan Residents, 1977

ICDA LIST NO.	CAUSE OF DEATH	NO. OF DEATHS	PERCENT
440.0	Of Aorta	5	0.4
440.1	Of Renal Artery	1	0.1
440.2	Of Arteries of the Extremities	5	0.4
440.3	Of Other Specific Arteries	2	0.2
440.9	Generalized and Unspecified	1,151	98.9
	TOTAL	1,164	100.0

rates held fairly stable while Michigan rates dropped and then returned to national levels. Since the last ICDA revision in 1968, the arteriosclerosis rates in Michigan have been below national rates.

Virtually all arteriosclerosis deaths are reported as generalized and/or unspecified as to type. Only 13 of the 1,164 deaths were in other classifications (Table 2.32).

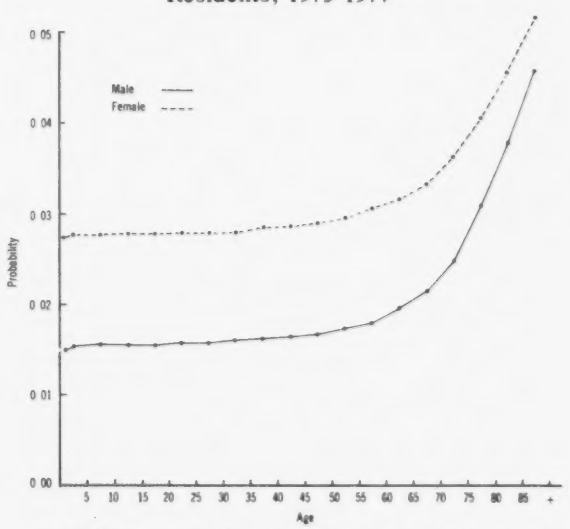
The 1975 through 1977 mortality data for Michigan indicate that females are more likely to eventually die from arteriosclerosis than males. At birth, the likelihood for females is 0.028, while for males it is 0.016. These probabilities rise slowly through age 50 and with increasing rapidity beyond age 50. By age 85, the probability of eventually dying from arteriosclerosis is 0.052 for females and 0.047 for males (Figure 2.30).

FIGURE 2.29—Arteriosclerosis Death Rates, Michigan and United States Residents,[1] 1900-1977[2]

[1]National rates are from death registration states for 1900-1932 and the United States for 1933-1977. U. S. rate for 1977 is provisional.

[2]Although Michigan and United States arteriosclerosis death rates are comparable for any given year, changes in the International Classification of Diseases over the years have made historic comparison of these rates extremely difficult. Comparability breaks are especially pronounced in the 1930, 1939, 1949 and 1968 revisions. Analysis of arteriosclerosis death rates over the time period 1900-1977 requires detailed study to maintain comparability.

FIGURE 2.30—Probability of Eventually Dying from Arteriosclerosis by Age and Sex, Michigan Residents, 1975-1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains some other specified cause of death, differences in scale may be encountered.

HOMICIDE

There were 946 deaths as the result of homicide among Michigan residents in 1977. Of these 730 or 77 percent were male deaths compared to 216 female homicides. About 63 percent of all homicide victims were other than white persons. The 111 other than white female deaths constituted 51 percent of all female homicide victims. Other than white male deaths comprised 83 percent of all male deaths attributed to homicide.

The median age at death among homicide victims in 1977 was only 31 years. White males were three years younger than white females at the median with statistics of 32 and 35 years respectively. Other than white male and female homicide victims were both aged 30 at the median (Table 2.33).

There were 10.4 homicide deaths for every 100,000 Michigan residents in 1977 (Table 2.34). The overall male rate of death due to homicide was 16.2 or 3.5 times the female rate of 4.7. Age-specific homicide rates for males were above those for females at all ages in 1977. Major differences between male and female rates are first evident in the age interval 15-19 where the male rate is nearly 4 times that for females. The largest differential occurs in the 25-29 age groups, the male rate exceeding the female rate by over 5 times.

The disparity between male and female age-specific rates is apparent in Figure 2.31. The female rate reaches a peak in age group 20-24, then remains near the peak rate through the 35-39 age group, and drops off in the older age groups. Male rates rise markedly from ages 10-14 to 25-29. The rate drops sharply for ages 30-34 and declines further in the older age groups.

Homicide in Michigan was negligible in 1900 when compared to today. The rate at the turn of the century was 0.6, the lowest rate observed over the 78 years from 1900 to 1977. The highest rate for this period was 13.6, observed in 1974.

TABLE 2.34—Homicide Death Rates by Age and Sex, Michigan Residents, 1977

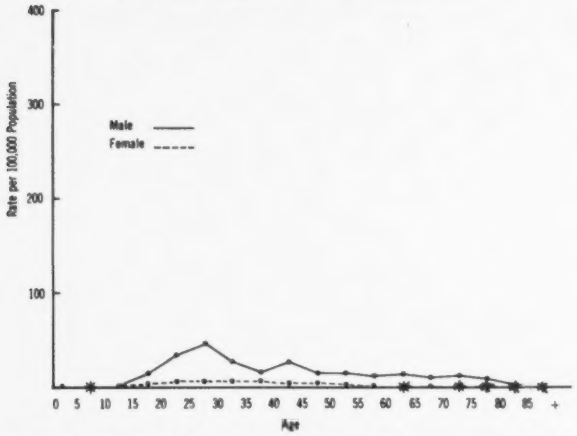
AGE	TOTAL	MALE	FEMALE
All Ages	10.4	16.2	4.7
0-4 Years	3.0	3.6	2.3
5-9 Years	0.8	1.1	*
10-14 Years	1.0	1.2	*
15-19 Years	10.2	16.2	4.2
20-24 Years	22.6	37.0	9.2
25-29 Years	25.6	47.8	9.0
30-34 Years	19.2	29.3	8.5
35-39 Years	13.8	17.9	8.9
40-44 Years	17.9	27.1	7.6
45-49 Years	11.4	16.5	6.1
50-54 Years	8.6	14.0	3.4
55-59 Years	7.6	11.8	3.6
60-64 Years	7.7	13.4	2.5
65-69 Years	7.0	10.5	4.0
70-74 Years	7.2	11.1	4.3
75-79 Years	6.0	10.4	*
80-84 Years	5.7	8.8	*
85 and Over	*	*	*

TABLE 2.33—Deaths Due to Homicide by Age, Race, and Sex, Michigan Residents, 1977

AGE	ALL RACES			WHITE			ALL OTHER[1]		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Under 1 Year	6	3	3	2	2	—	4	1	3
1-4 Years	15	10	5	4	2	2	11	8	3
5-9 Years	7	5	2	2	1	1	5	4	1
10-14 Years	9	6	3	5	3	2	4	3	1
15-19 Years	96	76	20	37	29	8	59	47	12
20-24 Years	171	135	36	57	40	17	114	95	19
25-29 Years	148	118	30	41	29	12	107	89	18
30-34 Years	130	102	28	42	31	11	88	71	17
35-39 Years	71	50	21	28	17	11	43	33	10
40-44 Years	70	56	14	19	13	6	51	43	8
45-49 Years	54	40	14	21	12	9	33	28	5
50-54 Years	45	36	9	20	14	6	25	22	3
55-59 Years	36	27	9	14	10	4	22	17	5
60-64 Years	30	25	5	15	11	4	15	14	1
65-69 Years	20	14	6	7	4	3	13	10	3
70-74 Years	15	10	5	9	4	5	6	6	—
75-79 Years	10	7	3	5	4	1	5	3	2
80-84 Years	8	5	3	8	5	3	—	—	—
85-89 Years	1	1	—	—	—	—	1	1	—
90 and Over	1	1	—	1	1	—	—	—	—
Not Stated	3	3	—	2	2	—	1	1	—
Total	946	730	216	339	234	105	607	496	111
Median Age	31	31	32	32	32	35	30	30	30

[1] All Other includes race not stated.

FIGURE 2.31—Homicide Death Rates by Age and Sex, Michigan Residents, 1977[1]

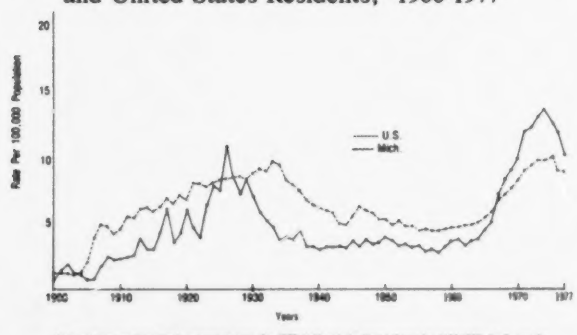


[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

The homicide rate in Michigan rose in the early part of this century to a peak of 10.6 in 1926 whereupon it then declined. It was relatively stable from 1934 through 1964. In the years 1965 through 1974 the Michigan rate rose from 3.7 homicides per 100,000 in 1965 to the century high mark of 13.6 reached in 1974. The statistic for 1977 of 10.3 constitutes the third consecutive decline in the annual homicide mortality rate after 12 years of rising rates.

From 1900 to 1964, the homicide rate in Michigan was above the national rate only five times. In the last eleven years (1967-1977), the Michigan rate has been higher than that observed nationally, without exception. In 1977, the Michigan rate of death due to homicide was 14 percent above the provisional rate of 9.0 observed nationally.

FIGURE 2.32—Homicide Death Rates, Michigan and United States Residents,[1] 1900-1977[2]



[1]National rates are from death registration states for 1900-1932 and the United States for 1933-1977. U. S. rate for 1977 is provisional.
[2]Homicide death rates since 1900 are suitable for general comparisons over time but detailed study (such as time series) requires special consideration. See Technical Notes.

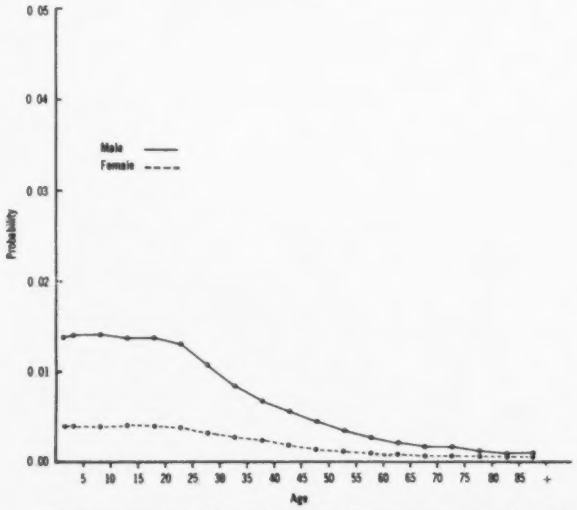
TABLE 2.35—Deaths Due to Homicide by Detailed Cause, Michigan Residents, 1977

ICDA LIST NO.	CAUSE OF DEATH	NO. OF DEATHS	PER-CENT
965	Assault by Firearms and Explosives	613	64.8
966	Assault by Cutting and Piercing Instruments	149	15.8
968	Assault by Other Unspecified Means	94	9.9
963	Assault by Hanging and Strangulation	55	5.8
970	Injury Due to Legal Interventions by Firearms	24	2.5
960	Fight, Brawl or Rape	4	0.4
964	Assault by Submersion	3	0.3
969	Late Effect Injury Inflicted by Other Person	3	0.3
962	Assault by Poisoning	1	0.1
	TOTAL	946	99.9

The methods used in 1977 for the commission of homicide are listed in Table 2.35. Assault by firearms and explosives resulted in 613 deaths. This was the most frequent type of homicide. Next most frequent was assult by cutting and piercing instruments. These two methods when combined constitute 80.5 percent of all methods. Another 2.5 percent of these deaths were the result of legal interventions in 1977.

With homicide most prevalent at younger ages, the probability of eventual death due to homicide is as high at birth as at any other age, according to Michigan death data by cause in 1975-1977 (Figure 2.33). The chance of a male eventually dying from this cause is 0.014 at birth. The risk for females is 0.004. The risk for both sexes stays about at these levels until the late 20's. With advancing age, the probability of eventually dying from homicide declines, becoming negligible for ages over 85.

FIGURE 2.33—Probability of Eventually Dying from Homicide by Age and Sex, Michigan Residents, 1975-1977[1]



[1]NOTE: Should comparisons be desired between this graph and a similar graph contained herein that pertains to some other specified cause of death, differences in scale may be encountered.

INFANT DEATH

Of the 74,144 deaths occurring to Michigan residents in 1977, 1,945 occurred to individuals less than one year of age. The frequency of infant deaths in Michigan has declined by 46 percent since 1967 when there were 3,595 such deaths (Table 2.36). The number of infant deaths has declined steadily since 1957 with the single exception of 1970. The 1977 frequency is 1.6 percent below the figure for 1976. Nationally, the number of infant deaths in 1977 was 46,500 (provisional), 41.2 percent below the number in 1967 and 3.7 percent less than 1976.

The rate of death for infants under the age of one year has dropped considerably since 1900. In that year there were 157.1 infant deaths for every 1,000 live births. This means about 16 of every 100 infants did not survive their first year. This rate fell below 100 by 1914 (96.8), to less than 70 by 1927 (67.7), then less than 50 by 1937 (47.8). During the 40's, the

FIGURE 2.34—Infant Mortality Rates, Michigan Residents, 1900-1977, and United States Residents,[1] 1915-1977

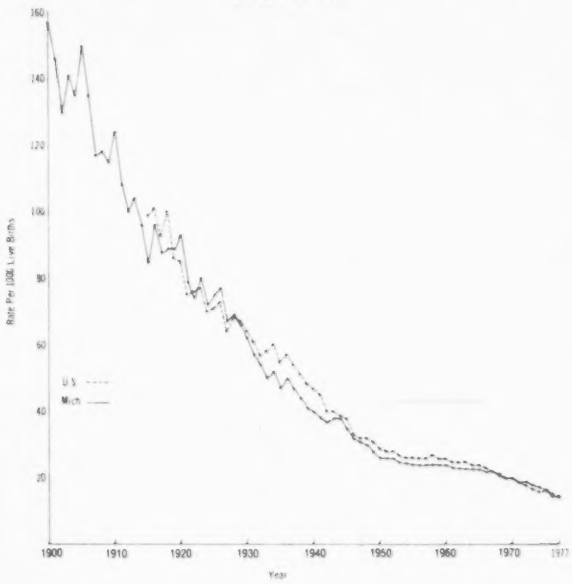


TABLE 2.36—Infant Deaths and Infant Mortality Rates, Michigan and United States Residents, 1967-1977

UNITED STATES		YEAR	MICHIGAN	
NO.	RATE		NO.	RATE
79,028	22.4	1967	3,595	22.1
76,263	21.8	1968	3,438	21.6
75,073	20.9	1969	3,356	20.2
74,667	20.0	1970	3,492	20.3
67,981	19.1	1971	3,157	19.5
60,182	18.5	1972	2,801	19.1
55,581	17.7	1973	2,561	18.1
52,776	16.7	1974	2,387	17.4
50,525	16.1	1975	2,205	16.5
48,265	15.2	1976	1,978	15.1
46,500 Prov	14.0 Prov	1977	1,945	14.1

TABLE 2.37—Infant Deaths and Mortality Rates by Infant's Age at Death, Michigan Residents, 1970-1977

YEAR	AGE AT DEATH									
	TOTAL INFANT DEATHS		UNDER 1 DAY		1 to 6 DAYS		7 to 27 DAYS		28 to 365 DAYS	
	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE
1970.....	3,492	20.34	1,367	7.96	1,095	6.38	221	1.29	809	4.71
1971.....	3,157	19.46	1,191	7.34	1,025	6.32	196	1.21	745	4.59
1972.....	2,801	19.07	1,024	6.97	906	6.17	185	1.26	686	4.67
1973.....	2,561	18.09	1,131	7.99	579	4.09	192	1.36	659	4.66
1974.....	2,387	17.37	940	6.84	569	4.14	225	1.64	653	4.75
1975.....	2,205	16.46	856	6.39	461	3.44	246	1.84	642	4.79
1976.....	1,978	15 06	829	6.31	402	3.06	193	1.47	554	4.22
1977.....	1,945	14.05	794	5.74	374	2.70	199	1.44	578	4.18

TABLE 2.38—Infant Deaths, Live Births, and Infant Death Rates by Age of Mother and Race of Infants, Michigan Resident Infants Born in 1976

AGE OF MOTHER	ALL INFANTS			WHITE INFANTS			ALL OTHER INFANTS[1]		
	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
TOTAL	1,943	131,378	14.8	1,378	107,907	12.8	565	23,471	24.1
Under 15 Years	10	404	24.8	4	171	23.4	6	233	25.8
15-19 Years	496	22,593	22.0	306	15,911	19.2	190	6,682	28.4
20-24 Years	688	47,161	14.6	517	38,999	13.3	171	8,162	21.0
25-29 Years	495	41,412	12.0	368	36,041	10.2	127	5,371	23.6
30-39 Years	237	18,946	12.5	173	16,110	10.7	64	2,836	22.6
40 or More Years	17	846	20.1	10	663	15.1	7	182	38.5
Unknown	—	16	000	—	12	000	—	5	000

[1] Race not stated included with all other.

Michigan infant death rate declined from 40.6 in 1940 to 28.9 in 1949. Relative declines in rate slowed considerably at this point. It was not until 1971 that the rate dropped below 20 to 19.5. In 1977, the Michigan rate of infant mortality was 14.1 (Figure 2.34).

During the period 1915-1928, the state rate was above that for the United States 9 to 14 years. From 1929 through 1969, Michigan's infant death rate was consistently below national statistics. Since 1970, the infant mortality rate in Michigan has been slightly higher than the national rate. The national rate for 1977 is 14.0 (provisional).

There are three subclassifications of infant death:

Deaths Under 1 Day ..... 794 in 1977
Deaths Under 7 Days .....1,168 in 1977
Deaths Under 28 Days .....1,367 in 1977
Total Infant Deaths
(Under 1 Year) .....1,945 in 1977

About 70 percent of all infant deaths occurred within the first month of life in 1977, with about 60 percent in the first week. These percentages were 77 and 71 percent in 1970. A review of Table 2.37 reveals that the 30.9 percent decline in infant mortality rate since 1970 stems largely from reductions in the rate of death under 7 days. The death rate for infants during their first day of life has declined 27.8 percent since 1970, while infant death rates for ages 1 through 6 days has declined by 57.7 percent over the last seven years. In contrast, rates for infants aged 7 to 27 days have actually increased during this same time period. Death rates for infants aged 28 to 365 days declined to its lowest level of the 70's in 1977 down slightly from the 1976 rate.

Infant mortality rates have historically been shown to vary with the age of the mother and the race of the child. Infant mortality rates by age of mother and race of child are provided in Table 2.38. These data are from a file of merged live birth and infant death information. The rates presented are associated with Michigan residents born in 1976. Note that this matched file is approximately 96.3 percent complete and, therefore, the rates presented are understated.

Infant death rates display somewhat of a parabolic relationship with mother's age. These rates are highest for infants born to very young mothers. The infant mortality rates associated with mothers under 20, and particularly with those under 15 years, are higher than the rate of any other age grouping. Mothers in their 20's, and 30's display significantly lower infant mortality, with the lowest rates observed in the 25-29 age group. The mortality rate for mothers over 40 is nearly as high as that for mothers 15-19.

Both white and other than white rates generally followed the pattern of association to mother's age, but infant mortality rates for the other than white group are significantly above those for the white group. For babies born in 1976, the other than white rate was 88 percent higher than that of whites. In the under 25 age groups, the differential mortality between the white and other than white rates is less than 60 percent. In the over 25 age groups, the differential is over 100 percent.

TABLE 2.39—Infant Deaths, Live Births, and Infant Death Rates by Prenatal Visits and Race of Infant, Michigan Resident Infants Born in 1976

NUMBER OF VISITS	ALL INFANTS			WHITE INFANTS			ALL OTHER INFANTS[1]		
	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE	INFANT DEATHS	LIVE BIRTHS	INFANT DEATH RATE
TOTAL	1,943	131,378	14.8	1,378	107,907	12.8	565	23,471	24.1
0	62	923	67.2	33	478	69.0	29	445	65.2
1-4	472	6,985	67.6	293	4,309	68.0	179	2,676	66.9
5-9	704	36,669	19.2	508	28,225	18.0	196	8,444	23.2
10-14	509	71,070	7.2	407	62,365	6.5	102	8,705	11.7
15-19	61	9,376	6.5	53	8,097	6.5	8	1,279	6.3
20 and Over	22	2,273	9.7	15	1,801	8.3	7	472	14.8
Unknown	113	4,082	27.7	69	2,632	26.2	44	1,450	30.3

[1] Race not stated included with all other.

Table 2.39 shows the variation in infant death rates according to the number of prenatal visits by the mother. The highest infant death rates were associated with mothers who had no prenatal care (67.2) and those with 1-4 prenatal visits (67.6). These rates are over ten times the low rate of 6.5 associated with mothers who had 15-19 prenatal visits. The rate associated with mothers who had 5-9 visits was 19.2, three times the low rate. The rate associated with mothers who had 20 or more prenatal visits was 49 percent above the low rate, reflecting the likelihood that a very high number of prenatal visits is connected with a problem pregnancy. Mothers with fewer than ten prenatal visits had 33.9 percent of all live births but 63.7 percent of all infant deaths. Mothers who had ten or more prenatal visits had 63.0 percent of live births and 30.5 percent of infant deaths. The infant death rate associated with mothers who had fewer than ten prenatal visits was 27.8, 3.9 times the rate of 7.2 associated with mothers who had ten or more prenatal visits.

The differential in mortality rates between other than white and white infants noted above is significantly altered when comparisons are made within the same range of prenatal visits. In the very high risk categories of 0 and 1-4 prenatal visits, the other than white rate is slightly lower than the white rate. For mothers with fewer than ten prenatal visits, the white infant mortality rate was 25.3 and the other than white rate 34.9. For mothers with ten or more prenatal visits, the white rate was 6.6 and the other than white rate 11.2. The other than white rate was 37.9 percent higher where the mother had fewer than ten prenatal visits and 69.7 percent higher where the mothers had ten or more visits. Both of these racial differentials and the differential for each prenatal care range taken separately are less than the overall racial differential of 88.3 percent. This seemingly paradoxical result is explained by the differing distributions of the white and the other than white births. Other than white births are more concentrated in the low prenatal visit intervals which experienced significantly higher mortality rates in 1977.

When deaths under one week are grouped together

TABLE 2.40—Perinatal Deaths, Total Births, and Perinatal Death Rates by Age of Mother and Race,[1] Michigan Residents Born in 1976

AGE OF MOTHER	ALL RACES			WHITE			ALL OTHER[1]		
	PERI-NATAL DEATHS	TOTAL BIRTHS	PERI-NATAL DEATH RATE	PERI-NATAL DEATHS	TOTAL BIRTHS	PERI-NATAL DEATH RATE	PERI-NATAL DEATHS	TOTAL BIRTHS	PERI-NATAL DEATH RATE
TOTAL	2,480	132,649	18.7	1,769	108,810	16.3	711	23,839	29.8
Under 15 Years	14	411	34.1	5	174	28.7	9	237	38.0
15-19 Years	524	22,846	22.9	332	16,073	20.7	192	6,773	28.3
20-24 Years	867	47,623	18.2	638	39,329	16.2	229	8,294	27.6
25-29 Years	643	41,710	15.4	475	36,264	13.1	168	5,446	30.8
30-39 Years	396	19,173	20.7	298	16,281	18.3	98	2,892	33.9
40 or More Years	32	866	37.0	20	676	29.6	12	189	63.5
Unknown	4	20	000	1	13	000	3	8	000

[1]Race of perinate (fetus or newborn); race not stated included with all other.

TABLE 2.41—Perinatal Deaths, Total Births, and Perinatal Death Rates by Prenatal Visits and Race,[1] Michigan Residents Born in 1976

NUMBER OF VISITS	ALL RACES			WHITE			ALL OTHER[1]		
	PERI-NATAL DEATHS	TOTAL BIRTHS	PERI-NATAL DEATH RATE	PERI-NATAL DEATHS	TOTAL BIRTHS	PERI-NATAL DEATH RATE	PERI-NATAL DEATHS	TOTAL BIRTHS	PERI-NATAL DEATH RATE
TOTAL	2,480	132,649	18.7	1,769	108,810	16.3	711	23,839	29.8
0	84	972	86.4	48	507	94.7	36	465	77.4
1-4	571	7,203	79.3	360	4,441	81.1	211	2,762	76.4
5-9	807	37,047	21.8	590	28,498	20.7	217	8,549	25.4
10-14	536	71,330	7.5	434	62,572	6.9	102	8,758	11.6
15-19	71	9,417	7.6	58	8,129	7.1	13	1,288	10.1
20 and Over	25	2,290	10.9	19	1,817	10.5	6	473	12.7
Unknown	386	4,390	87.9	260	2,846	91.4	126	1,544	81.6

[1]Race of perinate (fetus or newborn); race not stated included with all other.

with fetal deaths, the resultant total is called perinatal deaths. By placing a ceiling of six days for the infant component of perinatal deaths, most accidental and environmental causes of death are eliminated. In 1977, Michigan resident perinatal deaths numbered 2,456 and the perinatal death rate was 17.6. This rate was 18.9 in 1976 and 26.0 in 1970.

As with infant death rates, perinatal mortality rates vary considerably with the age of mother, the number of prenatal visits, and the race of the perinate. Tables 2.40 and 2.41 contain perinatal deaths and rates by age of mother, the number of the mother's prenatal visits, and race of the perinate for fetal deaths and live births occurring in 1976. As with Tables 2.37 and 2.38, a part of the data, i.e., hebdomadal deaths, are drawn from a merged file of birth and death data. As a result, perinatal deaths and rates are slightly understated. Table 2.40 makes clear the increased risk of death to perinates of mothers under 20 or age 40 or greater. Minimum risk in 1976 was associated with mothers 25-29 years of age. Table 2.41 indicates that the risk of perinatal death is more than ten times as great for perinates whose mothers had fewer than five prenatal visits compared with mothers with ten or more visits. As with infant deaths, the risk associated with 5-9 prenatal visits is approximately three times as great as the lowest risk category.

Michigan resident infant deaths in 1977 are listed by cause of death classification in Table 2.42. Congenital anomalies caused the deaths of 311 infants and was the specific disease category most frequently reported. Sudden infant death syndrome was responsible for 237 infant deaths in 1977. Immaturity unqualified was listed as the cause of 155 deaths. Hyaline membrane disease was the cause of 144 infant deaths.

The vast majority of infant deaths are attributable to causes restricted to the fetus and newborn, but there still remain other major causes of death, particularly in three areas: (1) infective and parasitic diseases; (2) respiratory diseases; and (3) accidents. Influenza and pneumonia deaths numbered 57, while accidental deaths numbered 43. There were 6 homicides involving infants in 1977.

The median birth weight of infants born in 1976 and dying prior to 1 year of age was 1,786 grams (Table 2.43). The median birth weight of all Michigan resident live births in 1976 was 3,356 grams. For all maternal age groups, the median birth weight for infant deaths was below what is considered normal weight ranges.

TABLE 2.42—Infant Deaths by Cause of Death, Michigan Residents, 1977

ICDA LIST NUMBER/S	CAUSE OF DEATH	FREQUENCY
740-759	Congenital Anomalies	311
795.0	Sudden Infant Death Syndrome	237
777	Immaturity Unqualified	155
776.1	Hyaline Membrane Disease	144
776.9	Asphyxia of Newborn	137
776.2	Respiratory Distress Syndrome	136
764-768 (.0-.3), 772	Birth Injuries	60
470-474, 480-486	Influenza and Pneumonia	57
Residual 000-136	Other Infective and Parasitic Diseases	54
E800-E949	Accidents	43
390-398, 402, 404, 410-429	Heart Disease	31
008-009	Enteritis and Other Diarrheal Diseases	22
320	Meningitis	22
550-553, 560	Hernia and Intestinal Obstruction	16
430-438	Cerebrovascular Disease	9
E960-E978	Homicide	6
140-209	Malignant Neoplasms	6
210-239	Benign Neoplasms	5
580-584	Nephritis and Nephrosis	3
466	Acute Bronchitis and Bronchiocities	3
250	Diabetes Mellitus	2
280-285	Anemias	2
490, 491	Chronic and Unqualified Bronchitis	2
441-448	Other Diseases of Arteries, etc.	1
571	Cirrhosis of the Liver	1
E980-E999	All Other External Causes	1
574, 575	Cholelithiasis, Cholecystitis and Cholangitis	1
Residual 760-778	Other Diseases of Early Infancy	401
	All Other Diseases	77
	TOTAL	1,945

TABLE 2.43—Infant Deaths by Birth Weight and Mother's Age, Michigan Resident Infants Born in 1976

BIRTH WEIGHT IN GRAMS	TOTAL	MOTHER'S AGE					
		UNDER 15	15-19	20-24	25-29	30-39	40 OR MORE
TOTAL	1,943	10	496	688	495	237	17
500 or Less	146	2	27	57	40	20	—
501-1,000	486	2	135	145	137	65	2
1,001-1,500	233	2	74	72	63	20	2
1,501-2,000	170	1	49	56	42	20	2
2,001-2,500	201	—	53	75	43	27	3
2,501-3,000	214	1	53	76	48	32	4
3,001-3,500	249	—	61	109	54	24	1
3,501-4,000	164	1	32	69	43	18	1
4,001-4,500	41	1	6	14	12	7	1
4,501 and Over	20	—	2	7	9	2	—
Not Stated	19	—	4	8	4	2	1
Median Weight	1,786	*	1,603	2,067	1,566	1,813	*

COMMUNICABLE DISEASE DEATHS

Although comprising a smaller proportion of deaths than they have in the past, communicable disease deaths continue to be a major concern to public health professionals. Deaths due to such diseases as diphtheria, scarlet fever, streptococcal sore throat, small pox, typhoid fever, measles, poliomyelitus and others have been virtually eliminated not only in Michigan, but across the nation. Table 4.7 illustrates trends in deaths from the major communicable diseases.

In 1977, deaths from all infective and parasitic diseases numbered 609. As can be observed from Table 2.44, the four major causes of death in this group are septicemia (278 deaths), tuberculosis (97 deaths), diarrheal disease (53 deaths) and infectious hepatitis (18 deaths).

Of particular importance is the fact that infants accounted for 12.5 percent of all infective and parasitic disease deaths while accounting for only 2.6 percent of all deaths.

TABLE 2.44—Deaths From Selected Infective and Parasitic Diseases, Michigan Residents, 1977

ICDA LIST NUMBER	CAUSE OF DEATH	FREQUENCY
038	Septicemia	278
010-019	Tuberculosis	97
009	Diarrheal Disease	53
070	Infectious Hepatitis	18
036	Meningococcal Infections	9
044	Late Effects of Acute Poliomyelitis	6
054	Herpes Simplex	6
065	Viral Encephalitis	4
094	Syphilis of Central Nervous System	2
093	Cardiovascular Syphilis	1
	All Other	135
	TOTAL	609

LIFE EXPECTANCY

The life expectancy of a Michigan resident at birth is 72.7 years, based on 1977 mortality statistics. Michigan males demonstrated a significantly shorter longevity than Michigan females. In 1977 the years remaining at birth are 69.3 for males and 76.3 for females. This results from the higher mortality rate of males at all ages.

Life expectancies by sex in selected years for Michigan and United States residents are presented in Table 2.45. It can be seen that longevity has increased greatly since 1901, about 16 years for Michigan males and about 21 years for Michigan females. The life expectancy of Michigan residents was well above that for the nation in 1901, but this differential had virtually disappeared by 1950. In 1976, the life expectancy of both males and females in Michigan was below that demonstrated nationwide. Michigan male longevity was 0.6 years below the national statistic in 1976 while longevity for females residing in this state was 1.1 years below the average for the country. Note that females have consistently demonstrated greater longevity than males both in Michigan and the United States.

It may seem inconsistent that the crude death rate in Michigan is below the national rate (Table 2.1) and yet life expectancy in the state is lower than that for the country. This results from crude rates failing to consider the age distributions of the populations. Life

TABLE 2.45—Life Expectancy at Birth by Sex, Michigan and United States Residents, Selected Years, 1901-1977

UNITED STATES			MICHIGAN	
Male Life Expectancy	Female Life Expectancy	YEAR	Male Life Expectancy	Female Life Expectancy
47.6	50.6	1901	53.4	55.1
48.4	51.8	1910	53.9	56.2
53.6	54.6	1920	55.1[1]	56.0[1]
58.1	61.6	1930	59.8[1]	62.8[1]
60.8	65.2	1940	63.4[1]	67.4[1]
65.6	71.1	1950	65.7	71.2
66.6	73.1	1960	67.1	73.3
67.1	74.8	1970	67.2	74.6
67.4	75.0	1971	67.3	74.9
67.4	75.1	1972	67.3	74.9
67.6	75.3	1973	67.4	75.0
68.1	75.8	1974	68.0	75.3
68.7	76.5	1975	68.5	75.7
69.0	76.7	1976	69.0	75.9
- - -	- - -	1977	69.3	76.3

[1] Michigan data for years 1920, 1930 and 1940 are for white only.

TABLE 2.46—Life Expectancy at Birth by Sex and Race, Michigan Residents, Selected Years

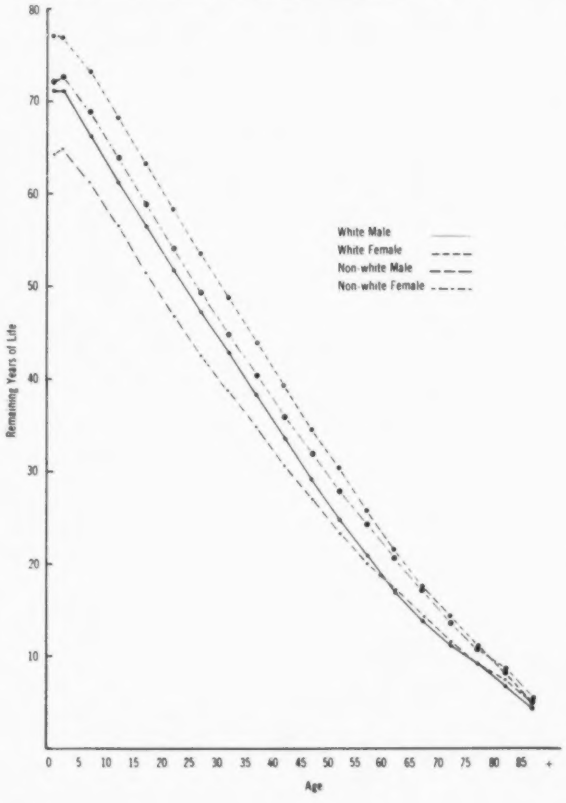
POPULATION SUBGROUP	YEAR			
	1950	1960	1970	1977
Total Population	68.3	70.0	70.8	72.7
Total Male	65.7	67.1	67.2	69.3
Total Female	71.2	73.3	74.6	76.3
Total White	68.8	70.5	71.6	73.5
White Male	66.2	67.5	68.2	70.1
White Female	71.9	74.0	75.3	77.0
Total All Other	61.8	65.6	65.0	67.9
All Other Male	60.4	63.6	61.0	64.1
All Other Female	63.4	67.7	69.4	72.0

expectancy statistics, on the other hand, neutralize the effects of differing age distributions. This exemplifies that Michigan's population is generally younger than the total United States population, and that the state's low crude death rate is somewhat misleading.

White persons displayed a life expectancy 5.6 years greater than other than white persons in 1977. White males can be expected to live 6.0 years longer than males of other races in 1977 compared to a differential of 5.8 years in 1950 (Table 2.46). The differential between females by race has moved in the opposite direction over the last twenty-five years. In 1950, Michigan resident white females had an average longevity 8.5 years greater than females of all other races. This disparity was 5.0 years in 1977. The enlarged racial difference between males is a reflection of the actual reduction in other than white longevity over the ten years from 1960 to 1970.

The expected number of years of life remaining are presented graphically by age, race, and sex in Figure 2.35. The relative differential between the sexes holds fairly stable throughout life, based upon Michigan resident mortality data from 1977. However, other than white persons display slightly greater life expectancies than white persons in the older age intervals. The average number of years remaining for other than white females surpasses that of white females around age 80. Other than white males displayed a greater expectation than that of white males at age 60 and over.

FIGURE 2.35—Remaining Years of Life by Age, Sex and Race, Michigan Residents, 1977



PLACE OF OCCURRENCE

There were 2,104 Michigan resident deaths in 1977 that occurred outside the state. This represents 2.8 percent of all resident deaths. There were 497 out-of-state resident deaths in the state of Florida in 1977. This is 23.6 percent of all such deaths, more than in any other area. The border areas of Ohio, Indiana, Wisconsin, and Canada account for 38.3 percent of all resident deaths outside Michigan. The near neighbor Illinois was the place of occurrence for 4.8 percent of these deaths. Michigan resident deaths occurred in all but two of the 50 states in 1977.

Of the non-residents that died in Michigan in 1977, 45.0 percent were from the border areas, 14.9 percent were Floridans and 9.2 percent from Illinois. Overall, non-residents who died in Michigan represented 41 states, the District of Columbia, and most continents of the world.

TABLE 2.47—Deaths Occurring Outside the State of Residence by State of Occurrence, Michigan Occurrences and Residents, 1977

GEOGRAPHIC AREA	DEATHS OF RESIDENTS OCCURRING OUTSIDE MICHIGAN		DEATHS OF NONRESIDENTS OCCURRING IN MICHIGAN	
	NUMBER	PERCENT	NUMBER	PERCENT
TOTAL	2,104	100.0	1,131	100.1
Florida	497	23.6	168	14.9
Ohio	297	14.1	173	15.3
Indiana	252	12.0	107	9.5
Wisconsin	183	8.7	173	15.3
Illinois	101	4.8	104	9.2
Canada	74	3.5	56	5.0
Other Areas	700	33.3	350	30.9

MARRIAGES AND DIVORCES

SECTION III

Marriage and Divorce An Overview 1977

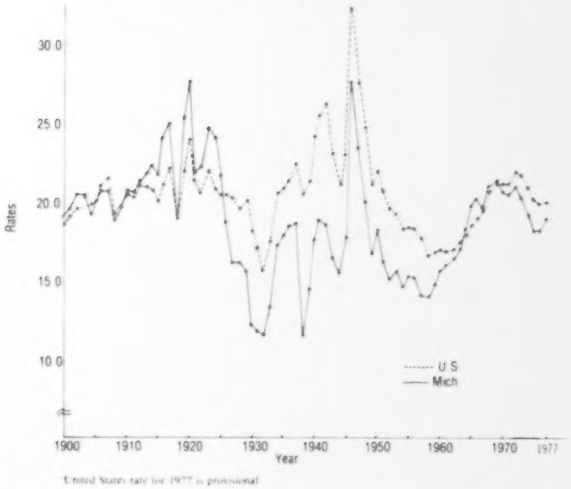
TOTAL MARRIAGES	86,088
TOTAL DIVORCES AND ANNULMENTS	43,036
MARRIAGE RATE	18.9
DIVORCE RATE	9.4
MEDIAN AGE OF THE BRIDE	23
MEDIAN AGE OF THE GROOM	25
MEDIAN DURATION OF MARRIAGES ENDING IN 1977	7 yrs. 10 mos.

The number of marriages and divorces occurring annually in Michigan has increased considerably since 1900. The frequency of marriage has generally followed the growth of Michigan's population. The smallest number of marriages from 1900 to 1977 was 23,295 in 1900, while the largest number was 94,486, occurring in 1973. Divorces and annulments have, on the other hand, tended to rise in frequency faster than population. The smallest and largest numbers of divorces and annulments were witnessed in almost the same years as for marriages with 2,435 occurring in 1900 and 43,101 taking place in 1976. In 1977, the number of marriages rose after three years of declining numbers. There were 86,088 marriages in 1977, four percent above the 1976 figure. There were 43,036 divorces and annulments in 1977, just below the 1976 total.

MARRIAGES

Since 1900, there have been noticeable shifts in the marriage rates both nationally and in Michigan (Figure 3.1). The marriage rates observed for the state have generally followed the pattern of rising and falling rates observed nationally. Strong historic shifts in rates have been related most notably to the factors of war and the economy. The number of persons married each year per 1,000 population was higher in Michigan than in the country for 19 of the 26 years from 1900 through 1925. Since 1926, the Michigan marriage rate has been exceeded annually by national statistics, excepting only 1965 through 1969. The marriage rate for Michigan in 1977 was 18.9, 3.8 percent above the 1976 rate of 18.2 (Table 3.1).

FIGURE 3.1—Marriage Rates, Michigan and United States Occurrences, 1900-1977



*United States rate for 1977 is provisional.

TABLE 3.1—Marriages and Rates, Michigan and United States Occurrences, Selected Years, 1920-1977

UNITED STATES		YEAR	MICHIGAN	
NO.	RATE		NO.	RATE
1,274,476	23.9	1920	50,805	27.7
1,126,856	18.3	1930	29,482	12.2
1,595,879	24.2	1940	46,342	17.6
1,667,231	22.1	1950	58,180	18.3
1,523,000	17.0	1960	61,090	15.6
1,548,000	16.9	1961	63,320	16.0
1,577,000	17.0	1962	65,002	16.4
1,654,000	17.5	1963	68,160	17.0
1,725,000	18.0	1964	73,911	18.2
1,800,000	18.6	1965	81,247	19.8
1,857,000	19.0	1966	83,903	20.2
1,927,000	19.5	1967	84,363	19.6
2,069,000	20.7	1968	90,984	20.5
2,145,000	21.2	1969	93,392	20.8
2,158,802	21.2	1970	91,933	20.7
2,190,481	21.2	1971	92,134	20.5
2,282,154	22.0	1972	94,447	21.0
2,284,108	21.8	1973	94,486	20.9
2,229,667	21.0	1974	88,023	19.3
2,152,662	20.2	1975	82,856	18.1
2,154,807	20.0	1976	82,753	18.2
2,176,000 Pr	20.1 Pr.	1977	86,088	18.9

RESIDENCE OF COUPLES MARRYING IN MICHIGAN

When presenting statistics of births, deaths and fetal deaths it is possible to provide total resident figures due to an interstate agreement for exchange of nonresident event information. Thus, should a Michigan resident give birth in some other state, that state will forward the information to Michigan. No such agreement exists for marriages. This is an important consideration when analyzing marriage statistics. The marriage data presented is drawn from all marriages performed in the state regardless of the couples' residence.

Table 3.2 shows that, in general, most of the couples marrying in Michigan are residents of the state. The table also relates that this pattern has not changed markedly over the last decade, though the proportion of marriages where both the bride and groom are not residents has declined substantially. These data indicate that the general characteristics of marriages occurring in Michigan should be representatives of marriage patterns for Michigan residents.

TABLE 3.2—Marriages by Residence Status of Bride and Groom Michigan Occurrences, 1967 and 1977

RESIDENCE STATUS	1967		1977	
	NO.	PERCENT	NO.	PERCENT
Both Bride and Groom Residents	74,652	88.5	80,970	94.1
Bride Resident, Groom Non-Resident	3,467	4.1	2,980	3.5
Groom Resident, Bride Non-Resident	968	1.1	640	0.7
Both Bride and Groom Non-Residents	5,276	6.3	1,497	1.7
Resident Status, Not Stated	—	—	1	0.0
Total	84,363	100.0	86,088	100.0

There were a total of 2,137 non-resident brides married in Michigan in 1977. The figure for grooms is more than double that of brides, numbering 4,478. Table 3.3 shows the ten most frequent residences of nonresident brides and grooms married in Michigan. The nearby states of Illinois, Indiana, Ohio and Wisconsin are the states of residence of 44 percent of all non-resident grooms and 58 percent of non-resident brides.

TABLE 3.3—State of Residence of Non-resident Brides and Grooms, Michigan Occurrences, 1977

GEOGRAPHIC AREA	NON-RESIDENT BRIDE	NON-RESIDENT GROOM
California	126	278
Florida	93	217
Illinois	192	398
Indiana	336	483
Minnesota	62	114
New York	52	172
Ohio	440	685
Texas	35	132
Wisconsin	282	408
Foreign Countries	77	296
Other States	442	1,295
Total	2,137	4,478

AGE AT MARRIAGE

Examination of the data in Table 3.4 reveals that females generally marry at a younger age than do males. More than twice the number of eligible females marry under the age of 20 compared to their eligible male counterparts. For ages 20 and over, eligible males marry more frequently than females, particularly in the 25 and over age groups. One half of all marriages occurring in Michigan involved brides under the age of 23 while the 50th percentile for grooms was 25.

The marriage rate for females under the age of 20 years is over two and one-third times the comparable rate for males (Table 3.4). Rates of marriage for males are higher than for females in all other age groups. Since 1970, there have been significant declines in the marriage rates for both sexes under the age of 25 years. The largest decline observed is for males under the age of 20 years for whom the marriage rate has dipped 49 percent. Between the ages of 25 and 44 the rates of marriage have increased since 1970 for both sexes, while rates for persons 45 and over have dropped slightly.

TABLE 3.4—Number of Marriages and Rates by Age and Sex, Michigan Occurrences, 1970 and 1977

AGES	MALES			FEMALES		
	NO. MARRIAGE 1977	RATE 1977	RATE 1970	NO. MARRIAGE 1977	RATE 1977	RATE 1970
Under 20[1]	9,514	20.2	38.9	22,654	47.7	77.6
20-24	34,558	94.6	126.7	33,317	85.3	93.8
25-34	26,408	44.4	36.1	19,067	28.9	22.1
35-44	7,746	16.0	12.7	5,795	13.8	9.7
45 and Over	7,860	6.1	6.6	5,254	3.6	4.4
Not Stated	2	000	000	1	000	000
Total	86,088	19.2	21.1	86,088	18.6	20.3
Median Age	25	000	000	23	000	000

[1] Under 20—15-19 Population used to obtain rate, under 20 for marriages include 14 years and over.

TABLE 3.5—Age at First Marriage and Remarriage: Bride, Michigan Occurrences, 1967 and 1977

AGES	1967				1977			
	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED
Under 20.....	32,172	31,641	508	23	22,654	22,341	299	14
Percent.....	38.1	48.8	2.6	63.9	26.3	37.3	1.1	63.6
20-24.....	30,733	27,395	3,334	4	33,317	28,893	4,419	5
Percent.....	36.4	42.2	17.1	11.1	38.7	48.3	16.8	22.7
25-29.....	7,291	3,818	3,469	4	12,885	6,348	6,535	2
Percent.....	8.6	5.9	17.8	11.1	15.0	10.6	24.9	9.1
30-34.....	3,472	905	2,566	1	6,182	1,377	4,805	—
Percent.....	4.1	1.4	13.2	2.8	7.2	2.3	18.3	—
35-44.....	5,116	692	4,422	2	5,795	558	5,236	1
Percent.....	6.1	1.1	22.7	5.6	6.7	0.9	20.0	4.5
45 and Over....	5,565	390	5,173	2	5,254	315	4,939	—
Percent.....	6.6	0.6	26.6	5.6	6.1	0.5	18.8	—
Not Stated.....	14	8	6	—	1	—	1	—
Percent.....	—	—	—	—	—	—	0.0	—
Total.....	84,363	64,849	19,478	36	86,088	59,832	26,234	22
Percent.....	99.9	100.0	100.0	100.1	100.0	99.9	99.9	99.9
Median Age....	22	20	35	000	23	21	32	000

ORDER OF MARRIAGE

The data in Tables 3.5 and 3.6 indicate that there is a trend toward older first marriages, and younger age for remarriages among both males and females. The median age at first marriage increased from 20 to 21 for brides and from 22 to 23 for grooms between 1967 and 1977. In the same period, the median age at remarriage dropped from 35 to 32 for brides and from 37 to 35 for grooms. The most frequent age group of first marriage for males was 20-24 in both 1967 and 1977. Among females, the modal age group in 1967 was under 20 years. Data for 1977 indicates a shift in mode to the 20-24 year age group for first marriages of brides. An examination of the most frequent age interval for remarriage among males reveals that 45 years of age and older is most frequent in both 1967 and 1977. Females again show greater dynamics as the most frequent age of remarriages was the same as males in 1967, but switched to the age group 25-29 in 1977.

TABLE 3.6—Age at First Marriage and Remarriage: Groom, Michigan Occurrences, 1967 and 1977

AGES	1967				1977			
	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED	TOTAL	FIRST MARRIAGE	RE-MARRIAGE	NOT STATED
Under 20.....	16,506	16,429	62	15	9,514	9,481	24	9
Percent.....	19.6	25.4	0.3	46.9	11.1	16.4	0.1	50.0
20-24.....	36,212	34,269	1,932	11	34,558	32,269	2,283	6
Percent.....	42.9	53.0	9.8	34.4	40.1	55.9	8.1	33.3
25-29.....	12,851	9,480	3,368	3	17,977	11,706	6,270	1
Percent.....	15.2	14.7	17.1	9.4	20.9	20.3	22.1	5.6
30-34.....	5,004	2,154	2,849	1	8,431	2,653	5,777	1
Percent.....	5.9	3.3	14.5	3.1	9.8	4.6	20.4	5.6
35-44.....	6,441	1,542	4,898	1	7,746	1,071	6,674	1
Percent.....	7.6	2.4	24.8	3.1	9.0	1.9	23.6	5.6
45 and Over....	7,339	741	6,597	1	7,860	556	7,304	—
Percent.....	8.7	1.1	33.5	3.1	9.1	1.0	25 8	—
Not Stated.....	10	4	6	—	2	1	1	—
Percent.....	0.0	0.0	0.0	—	0.0	0.0	0.0	—
Total.....	84,363	64,619	19,712	32	86,088	57,737	28,333	18
Percent.....	99.9	99.9	100.0	100.0	100.0	100.1	100.1	100.1
Median Age....	24	22	37	000	25	23	35	000

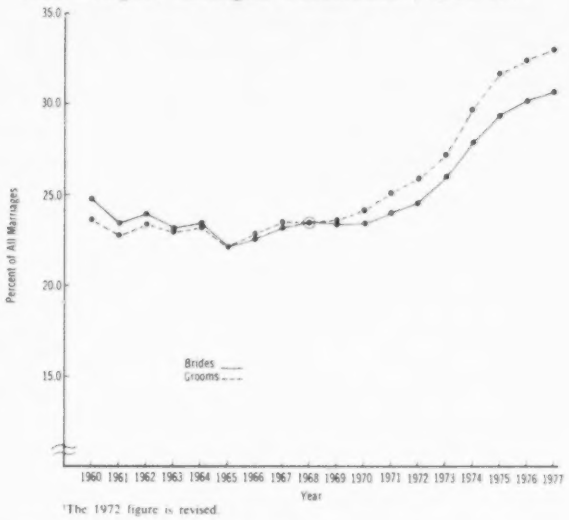
TABLE 3.7—Remarriages of Brides by Age and Order of Marriage, Michigan Occurrences, 1967 and 1977

AGES	1967				1977			
	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES
All Ages	84,363	15,264	3,510	704	86,088	20,911	4,346	977
Under 20	32,172	503	5	—	22,654	294	5	—
20-24	30,733	3,127	198	9	33,317	4,224	181	14
25-29	7,291	3,016	409	44	12,885	5,709	741	85
30-34	3,472	2,019	459	88	6,182	3,785	871	149
35-39	2,732	1,646	504	130	3,499	2,203	716	195
40-45	2,384	1,495	530	117	2,296	1,402	558	162
45 and Over	5,565	3,453	1,404	316	5,254	3,293	1,274	372
Not Stated	14	5	1	—	1	1	—	—
Median Age	22	32	42	43	23	30	38	41

Noting that remarriages can only occur when a prior marriage has been terminated by divorce, annulment or death of spouse, it is apparent that the age distribution of those remarrying will be generally older than for all marriages. Tables 3.7 and 3.8 demonstrate that the order of marriage has a strong positive relationship with the age of both brides and grooms. These data also show that remarriages constitute a larger percentage of all marriages in 1977 than 10 years earlier. In 1967, the proportion of all marriages that were remarriages was 23 percent for both brides and gooms. In 1977 comparable percentages were 30 percent for brides and 33 percent for grooms. This change in the proportion of all marriages which are remarriages is displayed graphically in Figure 3.2. Between 1960 and 1965, the proportion of remarriages dropped. Since 1965, the general trend in this proportion has been upward. The increase in the period 1972 through 1975 was especially marked for both sexes.

The increase in the number of remarriages since 1967 is especially evident in the 25-29 and 30-34 age

FIGURE 3.2—Percent of All Marriages that are Remarriages, Michigan Occurrences, 1960-1977[1]



[1]The 1972 figure is revised.

TABLE 3.8—Remarriages of Grooms by Age and Order of Marriage, Michigan Occurrences, 1967 and 1977

AGES	1967				1977			
	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES	ALL MARRIAGES	SECOND MARRIAGES	THIRD MARRIAGES	4TH OR MORE MARRIAGES
All Ages	84,363	15,955	3,157	600	86,088	22,729	4,682	923
Under 20	16,506	62	—	—	9,514	22	1	1
20-24	36,212	1,873	54	5	34,558	2,224	58	1
25-29	12,851	3,099	250	19	17,977	5,764	476	30
30-34	5,004	2,433	380	36	8,431	4,753	919	105
35-39	3,503	2,028	458	67	4,697	2,990	822	137
40-44	2,938	1,760	479	106	3,049	1,892	680	153
45 and Over	7,339	4,696	1,535	366	7,860	5,084	1,724	496
Not Stated	10	4	1	1	2	—	1	—
Median Age	24	36	45	Over 45	25	34	40	Over 45

groups. The 25-29 age group now surpasses the 45 and over age group in the number of second marriages among both brides and grooms. The proportion of remarriages that involve more than one prior marriage has remained fairly constant at about 20 percent for both brides and grooms.

The fact that remarriages have increased substantially in recent years is not too surprising in light of the increased numbers of divorces and annulments being granted. As the number of marriages that end in divorce has grown over the last decade, the potential population eligible to "remarry" has also grown. It seems apparent arithmetically that the declines in marriage rates for recent years would have been more rapid in the absence of the above conditions.

FIRST MARRIAGES

First marriages are an interesting component of all marriages in that they constitute an event that can never be duplicated. The frequency of first marriages can not be directly affected by rates of divorce or deaths to married persons and as such more clearly reflects the propensity of the population as a whole to enter into marital agreements.

There has been a general decline in both the number and rate of first marriages between 1970 and 1977 for both men and women. The number of first marriages dropped by 12.5 percent for women and by 14.8 percent for men. The rate of first marriages dropped 14.6 percent for women and 17.9 percent for men. This downward trend in the number and rate of first marriages has not been consistent, however. For both men and women, the number and rate of first marriages increased between 1970 and 1972, dropped between 1972 and 1976, and increased again in 1977 (Tables 3.9, 3.10, 3.11 and 3.12).

Changes in first marriage frequency have varied in different age groups. The greatest percentage decline in first marriages occurred in the under 20 age group for both brides and grooms. The number of first marriages in the under 20 age group dropped by 30 percent for brides and 38 percent for grooms between 1970 and 1977 while the corresponding first marriage rate dropped 38 percent for brides and 43 percent for grooms. The number and rate of first marriages have also declined for both brides and grooms in the 20-24 age group. There were significant percentage increases in the number and rate of first marriages of brides and grooms aged 25-29. For both sexes, the number of first marriages has declined for persons aged 40 and over since 1970. The first marriage rate has remained stable or increased slightly for brides but decreased for grooms in age groups beyond 29 years old. The increase in the overall first marriage rate between 1976 and 1977 is due to a rise in the rates of first marriages for brides aged 20 through 34 and grooms aged 25 through 39. This is consistent with the general trend since 1970 for 25-29 year old brides and grooms but a shift in trend for the other age intervals.

TABLE 3.9—First Marriages by Age of Bride, Michigan Occurrences, 1970-1977

AGE OF BRIDE	YEAR							
	1977	1976	1975	1974	1973	1972	1971	1970
All Ages	59,832	57,860	58,554	63,564	70,076	71,373	70,022	68,386
15-19 Yrs.[1]	22,341	23,208	24,723	28,238	32,658	33,948	33,227	31,730
20-24 Yrs.	28,893	27,014	26,604	28,153	30,249	30,771	30,646	30,688
25-29 Yrs.	6,348	5,634	5,189	5,094	5,036	4,615	4,138	4,036
30-34 Yrs.	1,377	1,113	1,075	1,108	1,108	1,048	973	964
35-39 Yrs.	385	381	422	382	395	403	408	395
40-44 Yrs.	173	205	177	204	228	217	221	214
45-49 Yrs.	118	126	132	152	154	139	153	147
50 and Over	197	177	229	233	247	228	254	208
Not Stated	—	2	3	—	1	4	2	4

[1] Brides under age 15 included in age 15-19.

TABLE 3.10—First Marriages by Age of Groom, Michigan Occurrences, 1970-1977

AGE OF GROOM	YEAR							
	1977	1976	1975	1974	1973	1972	1971	1970
All Ages	57,737	55,962	56,655	61,884	68,682	70,120	69,091	67,735
15-19 Yrs.[1]	9,481	10,206	11,188	13,209	15,468	16,416	16,044	15,391
20-24 Yrs.	32,269	30,961	31,327	34,283	38,436	39,641	39,692	38,999
25-29 Yrs.	11,706	10,916	10,336	10,455	10,596	10,048	9,306	9,379
30-34 Yrs.	2,653	2,288	2,157	2,208	2,289	2,139	2,056	2,097
35-39 Yrs.	747	665	680	716	749	759	794	740
40-44 Yrs.	324	343	322	339	418	415	454	493
45-49 Yrs.	198	226	241	260	314	294	317	270
50 and Over	358	355	404	412	412	408	428	366
Not Stated	1	2	—	2	—	—	—	—

[1] Grooms under age 15 included in age 15-19.

TABLE 3.11—First Marriage Rates by Age of Bride, Michigan Occurrences, 1970-1977

AGE OF BRIDE	YEAR							
	1977	1976	1975	1974	1973	1972	1971	1970
All Ages	12.9	12.5	12.6	13.7	15.2	15.5	15.2	15.1
15-19 Yrs.[1]	47.1	49.0	52.1	60.2	70.6	75.5	74.0	72.7
20-24 Yrs.	74.0	69.9	64.9	71.0	77.8	77.5	77.3	82.1
25-29 Yrs.	19.1	16.4	15.1	15.2	15.3	14.9	13.4	13.4
30-34 Yrs.	4.2	3.6	3.6	3.8	4.0	4.1	3.8	3.9
35-39 Yrs.	1.6	1.7	1.8	1.6	1.7	1.7	1.7	1.6
40-44 Yrs.	0.9	1.1	0.8	0.9	0.9	0.8	0.8	0.8
45-49 Yrs.	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.5
50 and Over	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2

[1] Brides under 15 included in age 15-19.

TABLE 3.12—First Marriage Rates by Age of Groom, Michigan Occurrences, 1970-1977

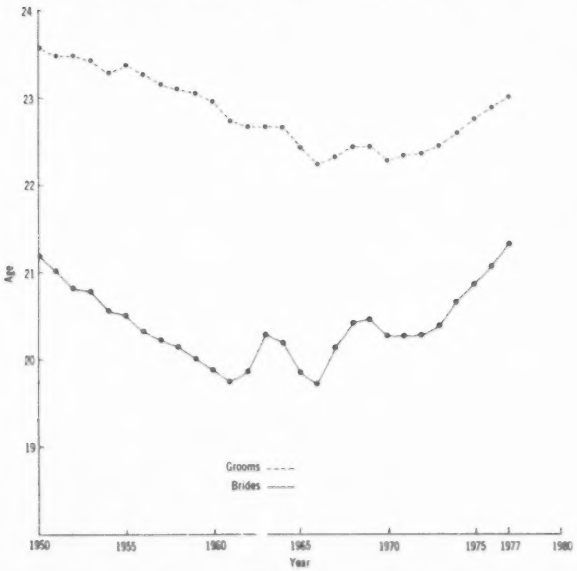
AGE OF GROOM	YEAR							
	1977	1976	1975	1974	1973	1972	1971	1970
All Ages	12.8	12.5	12.6	13.8	15.4	15.9	15.7	15.6
15-19 Yrs.[1]	20.1	21.9	22.6	27.0	32.2	35.8	35.0	35.3
20-24 Yrs.	88.4	88.6	76.0	91.1	110.8	116.0	116.3	118.6
25-29 Yrs.	47.4	40.7	39.3	38.1	35.9	33.4	31.0	32.0
30-34 Yrs.	7.6	6.8	6.8	7.1	7.7	8.6	8.3	8.8
35-39 Yrs.	2.7	2.6	2.6	2.9	3.1	3.3	3.5	3.2
40-44 Yrs.	1.6	1.7	1.4	1.4	1.7	1.6	1.8	1.9
45-49 Yrs.	0.8	0.9	0.9	1.0	1.2	1.1	1.2	1.0
50 and Over	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.4

[1] Grooms under 15 included in age 15-19.

AGE AT FIRST MARRIAGE

Over the last twenty-eight years, from 1950 through 1977, the median age at first marriage for both brides and grooms has not changed dramatically. Between 1950 and 1961, the median age at first marriage was declining for both brides and grooms, but this decline was greater for females than for males. Grooms were about 29 months older than brides at the median in 1950 and 36 months older in 1961. Between 1961 and 1966 the bride's median age at first marriage rose and then fell again to the low for the period since 1950 (19 years 9 months). The median age for grooms also reached a low point in 1966 (22 years 3 months). Since 1966, the median age of both brides and grooms has generally been rising. The bride's median age has been increasing more rapidly. In 1977 the female median age at first marriage of 21 years 4 months was the high for the period while the male median age of 23 years was below the male median age of the 1950's. The gap of 20 months between the male and female medians in 1977 was the smallest difference noted in the 28 year period (Figure 3.3).

FIGURE 3.3—Median Age at First Marriage by Sex, Michigan Occurrences, 1950-1977



DIVORCES AND ANNULMENTS

The number of divorces and annulments dropped slightly from 431,101 to 43,046 in 1977, the first such decrease since 1963. The rate of divorces and annulments decreased for the first time since 1961, going from 9.5 to 9.4. Since 1961, the number of divorces has increased more than two and one-half times and the rate has increased more than two and a quarter times in both Michigan and the United States (Table 3.13).

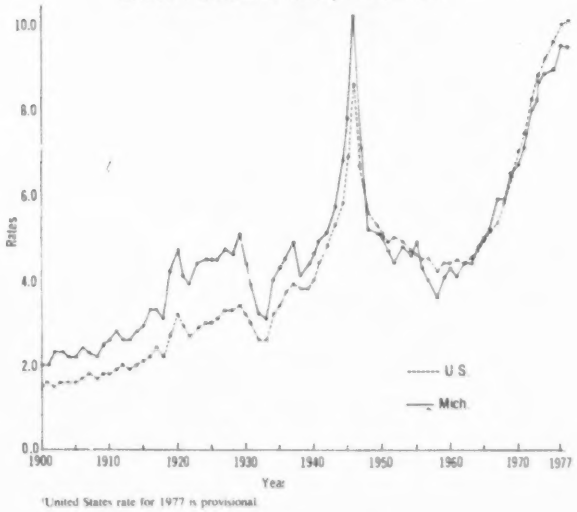
TABLE 3.13—Divorces and Annulments, Rates, Michigan and United States Occurrences, Selected Years, 1920-1977

UNITED STATES		YEAR	MICHIGAN	
NO.	RATE		NO.	RATE
170,505	3.2	1920	8,679	4.7
195,961	3.2	1930	10,639	4.4
264,000	4.0	1940	12,054	4.6
385,144	5.1	1950	15,979	5.0
393,000	4.4	1960	16,656	4.3
414,000	4.5	1961	16,219	4.1
413,000	4.4	1962	17,500	4.4
428,000	4.5	1963	17,479	4.4
450,000	4.7	1964	19,400	4.8
479,000	4.9	1965	20,305	5.0
499,000	5.1	1966	21,727	5.2
523,000	5.3	1967	23,620	5.5
584,000	5.8	1968	25,400	5.9
639,000	6.3	1969	28,347	6.5
708,000	7.0	1970	29,934	6.7
773,000	7.5	1971	31,790	7.1
845,000	8.1	1972	35,505	7.9
915,000	8.7	1973	37,134	8.2
977,000	9.2	1974	39,940[1]	8.8[1]
1,036,000	9.7	1975	40,782	8.9
1,083,000	10.1	1976	43,101	9.5
1,090,000 Pr.	10.1 Pr.	1977	43,036	9.4

[1]Estimate.

The number of persons divorced in Michigan per thousand population was greater than for the United States each year from 1900 through 1947. In the following 29 years the Michigan divorce rate has been at or below the national rate 22 times. The lowest rate in this century for Michigan was 2.0 in the years 1900 and 1901 while the lowest national rate was 1.5 in 1900 and 1902. The highest rate observed in the state was 10.2 in 1946. The provisional national estimate of 10.1 in 1977 is the highest national rate for the 78 years examined. This would be the fifth straight year that a century high has been observed in the United States. The 1976 divorce rate for Michigan was higher than that for any other year since 1900, excepting only the peak rate of 1946 (Figure 3.4).

FIGURE 3.4—Divorce Rates, Michigan and United States Occurrences, 1900-1977



[1]United States rate for 1977 is provisional.

TABLE 3.14—Divorces and Annulments by Duration of Marriage, Michigan Occurrences, 1967 and 1977

DURATION IN YEARS[1]	1967			1977		
	NUMBER	PERCENT	CUMULATIVE PERCENT	NUMBER	PERCENT	CUMULATIVE PERCENT
Under ½ Year	320	1.4	1.4	447	1.0	1.0
1-4	7,416	31.4	32.8	13,522	31.4	32.4
5-9	5,755	24.4	57.2	12,958	30.1	62.5
10-14	3,762	15.9	73.1	6,825	15.9	78.4
15-19	2,562	10.8	83.9	3,613	8.4	86.8
20-24	2,047	8.7	92.6	2,503	5.8	92.6
25-29	967	4.1	96.7	1,631	3.8	96.4
30-34	457	1.9	98.6	811	1.9	98.3
35-39	177	0.8	99.4	303	0.7	99.0
40-44	75	0.3	99.7	103	0.2	99.2
45-49	33	0.1	99.8	33	0.1	99.3
50 and Over	9	0.0	99.8	24	0.1	99.4
Not Stated	40	0.2	100.0	263	0.6	100.0
Total	23,620	100.0	100.0	43,036	100.0	100.0
Median Duration	8 yrs. 6 mos.	000	000	7 yrs. 10 mos.	000	000

[1]Duration in years = year of dissolution minus year of marriage.

DURATION OF MARRIAGE AT DIVORCE

The median duration of marriage at divorce was 7 years 10 months in 1977. Examination of Figure 3.5 reveals that this statistic dropped from 8 years 11 months in 1963 to 7 years 6 months in 1974. The median duration increased over the past three years through 1977. Table 3.14 provides a comparison of the duration of marriage at divorce in 1967 and 1977.

Marriages under 10 years duration represented 57.2 percent of the divorces in 1967 and 62.5 percent of those in 1977. Terminations of marriages with a duration of 5 to 9 years have increased faster than divorces in general in the 1967-77 period, rising from 24.1 percent to 30.1 percent of all divorces. Terminations of marriages of 15-29 years duration increased less rapidly than divorces in general, constituting 23.6 percent of divorces in 1967 compared to 18.0 percent of divorces in 1977.

FIGURE 3.5—Median Duration of Divorced and Annulled Marriages, Michigan Occurrences, 1960-1977

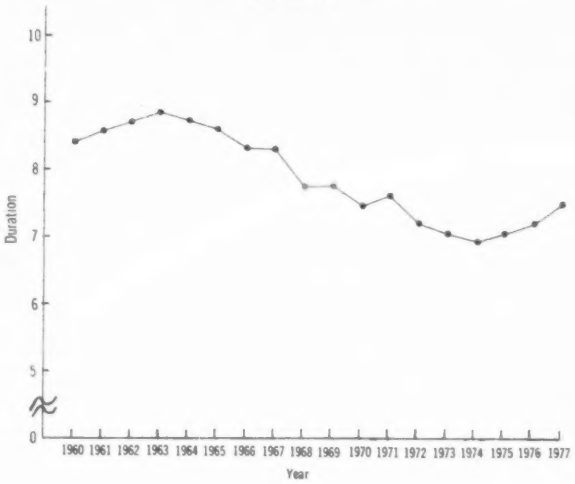


TABLE 3.15—Divorces and Annulments by Children Under 18 Present, Michigan Occurrences, 1967 and 1977

NUMBER OF CHILDREN	DIVORCES AND ANNULMENTS				PERCENT OF TOTAL DIVORCES AND ANNULMENTS	
	1967	ESTIMATED TOTAL CHILDREN (MINIMUM)[1]	1977	ESTIMATED TOTAL CHILDREN (MINIMUM)[1]	1967	1977
Zero	9,532	—	17,829	—	40.4	41.4
One	5,001	5,001	10,510	10,510	21.2	24.4
Two	4,156	8,312	8,891	17,782	17.6	20.7
Three	2,559	7,677	3,697	11,091	10.8	8.6
Four	1,323	5,292	1,259	5,036	5.6	2.9
Five or More	1,049	5,245	580	2,900	4.4	1.3
Not Stated	—	—	270	---	—	0.6
Total	23,620	31,527	43,036	47,319	100.0	99.9

[1] Total children for marriages involving 5 or more children under 18 is not available.

MINOR CHILDREN OF DIVORCED COUPLES

The number of children under 18 affected by divorces in 1977 was 47,319 at a minimum. This is a 50 percent increase since 1967. The average number of minor children per divorce has, nonetheless, dropped slightly, from 1.3 children in 1967 to 1.1 children in 1977. The percentage of divorces with 0, 1, and 2 children present has increased slightly over the last ten years, while the percentage with 3 or more children decreased. There has been a relative decline in the number of divorces affecting three children and an absolute decline in the number of divorces affecting four or more children (Table 3.15). It should be noted that Michigan live birth data indicates there has been a decline in the relative proportion of women having third or higher order live births over the past decade. Third order and higher births dropped from 40.5 percent of all live births in 1967 to 25.5 percent in 1977 (Table 1.9).

GROUNDS FOR DIVORCE

In 1967 cruelty was the primary grounds for divorce in 95.2 percent of the cases granted. Since the passage of the "no fault" divorce law effective January 1, 1972, legal grounds are seldom claimed. In 1977, only 0.7 percent of all Michigan divorces were not reported as "no fault" (Table 3.16).

TABLE 3.16—Divorces and Annulments by Legal Grounds for Decree Michigan Occurrences, 1967 and 1977

LEGAL GROUNDS	1967		1977	
	NO.	PERCENT	NO.	PERCENT
Cruelty	22,486	95.2	47	0.1
Desertion	472	2.0	2	0.0
Nonsupport	146	0.6	—	—
Fraud	169	0.7	79	0.2
Bigamy	25	0.1	10	0.0
Conviction of Crime	13	0.1	—	—
Adultery	16	0.1	—	—
Drunkenness	17	0.1	—	—
No Fault	—	—	42,727	99.3
Other	31	0.1	35	0.1
Not Stated	245	1.0	136	0.3
Total	23,620	100.0	43,036	100.0

REFERENCE APPENDIX

SECTION IV

TABLE 4.1

POPULATION; LIVE BIRTHS; DEATHS—ALL AGES, INFANT, NEONATAL, PERINATAL, FETAL, MATERNAL, AND DEATHS DUE TO IMMATURITY; MARRIAGES; AND DIVORCES
MICHIGAN, 1900 - 1977

(Deaths exclusive of fetal deaths. Perinatal deaths include deaths under 1 week and fetal deaths. Divorces include annulments.)

Year	Population[1]	LIVE BIRTHS		DEATHS						Marriages	Divorces
		Total	All Ages	Under 1 Year	Under[2] 28 Days	Perinatal	Due to[3] Immaturity	Fetal	Maternal		
1900	2,420,982	43,699	32,453	6,866			620	1,325	452	23,295	2,435
1901	2,459,901	43,221	32,834	6,319			524	1,501	531	24,079	2,448
1902	2,498,820	45,546	31,472	5,949			608	1,793	468	25,653	2,828
1903	2,537,739	46,020	33,176	6,488			542	1,814	427	26,029	2,945
1904	2,576,658	47,508	34,494	6,419			632	1,911	436	24,918	2,808
1905	2,615,578	46,976	34,679	7,054			751	2,044	416	26,307	2,825
1906	2,654,497	58,599	37,033	7,952			830	2,358	400	27,519	3,192
1907	2,693,416	59,029	36,701	6,906			855	2,358	391	27,940	3,107
1908	2,732,335	64,772	36,761	7,697			975	2,694	440	25,765	3,020
1909	2,771,254	64,323	36,313	7,443			1,152	2,540	405	27,353	3,516
1910	2,810,173	64,109	39,913	7,998			2,050	2,559	431	29,039	3,716
1911	2,895,997	65,756	38,007	7,131			2,223	2,716	451	29,859	4,125
1912	2,981,821	69,537	38,804	6,985			2,340	2,906	396	31,694	3,838
1913	3,067,645	73,058	40,827	7,659			2,460	2,953	528	33,529	3,978
1914	3,153,469	76,761	39,906	7,431			2,391	3,113	507	35,316	4,395
1915	3,239,293	81,100	40,441	6,943			2,207	3,357	488	35,527	4,757
1916	3,325,116	87,062	46,047	8,415			2,498	3,689	503	40,143	5,540
1917	3,410,940	89,419	47,236	7,916			2,369	3,550	586	42,791	5,627
1918	3,496,764	91,261	54,617	8,197			2,362	3,686	709	33,260	5,493
1919	3,582,588	84,062	45,636	7,560			2,183	3,361	578	45,579	7,469
1920	3,668,412	92,245	51,982	8,587			2,512	3,770	795	50,805	8,679
1921	3,785,799	96,035	44,186	7,584			2,481	3,669	605	41,508	7,676
1922	3,903,186	90,042	43,817	6,730			1,793	3,779	551	43,561	7,591
1923	4,020,573	92,956	49,333	7,477			1,911	3,657	583	49,569	8,745
1924	4,137,960	98,187	47,304	7,088	4,119	6,791	1,970	3,703	636	49,788	9,400
1925	4,255,347	98,983	49,417	7,498	4,022	6,667	1,987	3,670	629	46,276	9,650
1926	4,372,734	99,289	54,080	7,620	4,054	6,773	1,986	3,816	631	39,788	9,795
1927	4,490,121	99,940	50,600	6,766	3,915	6,794	1,911	3,834	667	36,276	10,617
1928	4,607,508	97,462	54,755	6,806	3,739	6,594	1,846	3,701	603	37,300	10,615
1929	4,724,895	98,695	56,117	6,605	3,777	6,613	1,853	3,710	617	36,816	12,094
1930	4,842,325	98,882	51,561	6,213	3,624	6,518	1,805	3,714	597	29,482	10,639
1931	4,883,703	90,547	49,068	5,187	3,064	5,643	1,473	3,220	539	28,856	9,507
1932	4,925,081	85,254	49,569	4,630	2,798	5,210	1,372	2,980	493	28,552	7,889
1933	4,966,459	80,482	48,507	4,094	2,591	4,906	1,364	2,776	447	33,132	7,671
1934	5,007,837	83,944	50,440	4,377	2,717	4,781	1,419	2,607	450	43,241	10,124
1935	5,049,216	87,403	51,051	4,170	2,550	4,632	1,389	2,717	438	45,313	10,844
1936	5,090,594	88,457	54,777	4,479	2,647	4,726	1,395	2,625	425	47,023	11,419
1937	5,131,972	91,566	53,468	4,374	2,700	4,919	1,415	2,707	326	47,954	12,472
1938	5,173,350	96,962	50,678	4,319	2,734	4,984	1,484	2,732	345	30,105	10,646
1939	5,214,728	94,432	52,017	3,952	2,594	4,706	1,396	2,572	280	37,725	11,589
1940	5,256,106	99,106	52,092	4,022	2,629	4,749	1,298	2,602	292	46,342	12,054
1941	5,437,546	107,498	52,671	4,166	2,687	4,991	1,353	2,769	298	50,989	13,317
1942	5,538,856	124,068	52,738	4,606	3,091	5,581	1,575	3,067	260	51,582	14,085
1943	5,377,329	125,441	56,774	4,804	2,979	5,563	1,488	3,213	237	44,385	15,259
1944	5,377,329	113,586	54,016	4,326	2,784	5,140	1,412	2,874	198	41,679	18,356
1945	5,435,092	111,557	53,641	4,008	2,670	4,906	1,339	2,703	166	48,329	21,133
1946	5,708,415	138,572	54,856	4,541	3,323	5,978	1,735	3,168	163	78,808	29,158
1947	5,069,000	160,275	56,807	5,055	3,677	6,583	1,953	3,422	173	71,319	21,386
1948	6,195,000	153,726	56,520	4,617	3,352	5,968	1,820	3,132	120	61,986	16,017
1949	6,352,000	156,469	57,107	4,520	3,232	5,746	1,795	2,994	105	53,109	16,274
1950	6,371,766	160,055	57,567	4,214	3,043	5,781	1,096	3,095	91	58,180	15,979
1951	6,545,000	172,451	59,181	4,505	3,296	6,088	1,232	3,158	94	53,411	15,446
1952	6,708,000	177,835	59,138	4,689	3,414	6,266	1,256	3,224	82	50,487	14,925
1953	6,852,000	182,968	62,087	4,728	3,389	6,188	1,114	3,180	79	53,308	16,537
1954	7,024,000	192,104	60,706	4,795	3,560	6,415	1,298	3,249	94	51,243	16,281
1955	7,236,000	196,294	63,087	4,873	3,707	6,381	1,272	3,029	61	55,698	17,676
1956	7,516,000	206,068	64,352	5,047	3,796	6,655	1,244	3,245	84	57,068	16,228
1957	7,803,000	208,488	66,435	5,093	3,884	6,668	1,322	3,154	79	55,121	15,442
1958	7,866,000	202,690	65,899	4,980	3,789	6,516	1,208	3,101	69	55,159	14,040
1959	7,960,000	198,301	66,812	4,846	3,674	6,250	1,201	2,928	72	58,826	16,168
1960	7,823,194	195,056	67,912	4,702	3,580	6,247	1,148	3,008	75	61,090	16,656
1961	7,903,000	192,825	67,375	4,604	3,475	5,875	1,003	2,735	78	63,320	16,219
1962	7,939,000	182,790	70,049	4,367	3,251	5,669	907	2,703	56	65,002	17,500
1963	8,030,000	178,871	72,438	4,150	3,109	5,407	816	2,540	71	63,160	17,479
1964	8,100,000	175,103	72,129	4,043	3,071	5,293	807	2,466	62	73,911	19,400
1965	8,199,283	166,464	73,665	3,936	2,909	5,139	768	2,475	54	81,247	20,305
1966	8,314,070	165,794	74,596	3,751	2,830	4,909	819	2,296	54	83,903	21,727
1967	8,615,000	162,756	75,360	3,595	2,714	4,693	718	2,195	52	84,363	23,620
1968	8,675,000	159,058	76,855	3,438	2,617	4,476	487	2,064	44	90,984	25,400
1969	8,734,000	165,760	76,693	3,356	2,550	4,488	459	2,175	27	93,392	28,347
1970	8,875,083	171,667	76,321	3,492	2,683	4,522	436	2,060	29	91,933	29,934
1971	8,996,000	162,244	77,395	3,157	2,412	4,139	386	1,923	32	92,134	31,790
1972	9,013,475	146,854	79,210	2,801	2,115	3,700	316	1,770	35	94,447	35,505
1973	9,061,000	141,550	78,522	2,561	1,902	3,392	263	1,682	26	94,486	37,121[4]
1974	9,098,000	137,414	76,143	2,387	1,734	2,960	240	1,451	19	88,023	39,940[4]
1975	9,157,000	133,931	74,522	2,205	1,563	2,690	187	1,373	16	82,856	40,782
1976	9,104,000	131,378	75,801	1,978	1,424	2,502	186	1,271	14	82,753	43,101
1977	9,129,000	138,416	74,144	1,945	1,367	2,456	155	1,288	11	86,088	43,036

[1]1900-1942: United States Bureau of Census April 1 Census counts and July 1 estimates.
1943-1944: United States Bureau of Census November 1, 1943 estimate.
1945-1960: United States Bureau of Census April 1 Census counts and July 1 estimates.
1961-1964: University of Michigan Population Studies Center July 1 estimates.
1965-1969: Michigan Center for Health Statistics July 1 estimate.
1970: United States Bureau of Census April 1 Census counts.
1971-1977: United States Bureau of Census Provisional July 1 estimates.

[2]For years prior to 1950 deaths under 1 month of age are included in deaths under 28 days.

[3]For 1910 through 1921 deaths due to immaturity also include deaths from congenital debility. Beginning with the year 1968, the category of deaths due to immaturity is no longer considered for primary mortality coding unless it is the only cause of death entered on the certificate. Previously this category included Immaturity Unqualified plus Immaturity with mention of any other Subsidiary Condition.

[4]Estimate.

TABLE 4.2

LIVE BIRTH RATES: DEATH RATES—ALL AGES, INFANT, NEONATAL, PERINATAL, MATERNAL AND MORTALITY RATES DUE TO IMMATURITY; FETAL DEATH RATIO: MARRIAGE AND DIVORCE RATES
MICHIGAN, 1900-1977

(Birth rate, death rate for all ages, rate of persons married and rate of persons divorced per 1,000 population. Fetal death ratio, mortality rates under 1 year, under 28 days, and death rates due to immaturity per 1,000 live births. Maternal mortality rates per 10,000 live births. Perinatal mortality rate - number of deaths under 1 week and fetal deaths per 1,000 live births and fetal deaths.)

Year	LIVE BIRTHS		DEATHS						PERSONS	
	Total	All Ages	Under 1 Year	Under[1] 28 Days	Perinatal	Due to[2] Immaturity	Fetal	Maternal	Married	Divorced
1900	18.1	13.4	157.1			14.2	30.3	103.4	19.2	2.0
1901	17.6	13.3	146.2			12.1	34.7	122.9	19.6	2.0
1902	18.2	12.6	130.6			13.3	39.4	102.8	20.5	2.3
1903	18.1	13.1	141.0			11.8	39.4	92.8	20.5	2.3
1904	18.4	13.4	135.1			13.3	40.2	91.8	19.3	2.2
1905	18.0	13.3	150.2			16.0	43.5	88.6	20.1	2.2
1906	22.1	14.0	135.7			14.2	40.2	68.3	20.7	2.4
1907	21.9	13.6	117.0			14.5	39.9	66.2	20.7	2.3
1908	23.7	13.5	118.8			15.1	41.6	67.9	18.9	2.2
1909	23.2	13.1	115.7			17.9	39.5	63.0	19.7	2.5
1910	22.8	14.2	124.8			32.0	39.9	67.2	20.7	2.6
1911	22.7	13.1	108.4			33.8	41.3	68.6	20.6	2.8
1912	23.3	13.0	100.4			33.6	41.8	56.9	21.3	2.6
1913	23.8	13.3	104.8			33.9	40.4	72.3	21.9	2.6
1914	24.3	12.7	96.8			31.1	40.6	66.0	22.4	2.8
1915	25.0	12.5	85.6			27.2	41.4	60.2	21.9	2.9
1916	26.2	13.8	96.7			28.7	42.4	57.8	24.1	3.3
1917	26.2	13.8	88.5			26.5	39.7	65.5	25.1	3.3
1918	26.1	15.6	89.8			25.9	40.4	77.7	19.0	3.1
1919	23.5	12.7	89.9			26.0	40.0	68.8	25.4	4.2
1920	25.1	14.2	93.1			27.2	40.9	86.2	27.7	4.7
1921	25.4	11.7	79.0			25.8	38.2	63.0	21.9	4.1
1922	23.1	11.2	74.7			19.9	42.0	61.2	22.3	3.9
1923	23.1	12.3	80.4			20.6	39.3	62.7	24.7	4.4
1924	23.7	11.4	72.2	41.9	66.7	20.1	37.7	64.8	24.1	4.5
1925	23.3	11.6	75.7	40.6	64.9	20.1	37.1	63.5	21.7	4.5
1926	22.5	12.4	77.5	41.2	66.3	20.2	38.8	64.2	18.7	4.5
1927	22.3	11.3	67.7	39.2	65.5	19.1	38.4	66.7	16.2	4.7
1928	21.2	11.9	69.8	38.4	65.2	18.9	38.0	61.9	16.2	4.6
1929	20.9	11.9	66.9	38.3	64.6	18.8	37.6	62.5	15.6	5.1
1930	20.4	10.6	62.8	36.6	63.5	18.3	37.6	60.4	12.2	5.4
1931	18.5	10.1	57.3	34.1	60.2	16.3	35.6	59.5	11.8	3.9
1932	17.3	10.1	54.3	32.8	59.0	16.1	35.0	57.8	11.6	3.2
1933	16.2	9.8	50.9	32.2	58.9	16.9	34.5	55.5	13.3	3.1
1934	16.8	10.1	52.1	32.4	55.2	16.9	31.1	53.6	17.3	4.0
1935	17.3	10.1	47.7	29.2	53.6	15.9	31.1	50.1	17.9	4.3
1936	17.4	10.8	50.6	29.9	51.9	15.8	29.7	48.0	18.5	4.5
1937	17.8	10.4	47.8	29.5	52.2	15.5	29.6	35.6	18.7	4.9
1938	18.7	9.8	44.5	28.2	50.0	15.3	28.2	35.6	11.6	4.1
1939	18.1	10.0	41.8	27.5	48.5	14.9	27.2	29.6	14.5	4.4
1940	18.9	9.9	40.6	26.5	46.7	13.1	26.3	29.5	17.6	4.6
1941	19.8	9.7	38.8	25.0	45.3	12.6	25.8	27.7	18.8	4.9
1942	22.4	9.5	37.1	24.9	43.9	12.7	24.7	21.0	18.6	5.1
1943	23.3	10.6	38.3	23.7	43.2	11.9	25.6	18.9	16.5	5.7
1944	21.1	10.0	38.1	24.5	44.1	12.4	25.3	17.4	15.5	6.8
1945	20.5	9.9	35.9	23.9	42.9	12.0	24.2	14.9	17.8	7.8
1946	24.3	9.6	32.8	24.0	42.2	12.5	22.9	11.8	27.6	10.2
1947	26.4	9.4	31.5	22.9	40.2	12.2	21.4	10.8	23.5	7.1
1948	24.8	9.1	30.0	21.8	38.0	11.8	20.4	7.8	20.0	5.2
1949	24.6	9.0	28.9	20.7	36.0	11.5	19.1	6.7	16.7	5.1
1950	25.1	9.0	26.3	19.0	35.4	6.8	19.3	5.7	18.3	5.0
1951	26.3	9.0	26.1	19.1	34.7	7.1	18.3	5.5	16.3	4.7
1952	26.5	8.8	26.4	19.2	34.6	7.1	18.1	4.6	15.1	4.4
1953	26.7	9.1	25.8	18.5	33.2	6.1	17.4	4.3	15.6	4.8
1954	27.3	8.6	25.0	18.5	32.8	6.8	16.9	4.9	14.6	4.6
1955	27.1	8.7	24.8	18.9	32.0	6.5	15.4	3.1	15.4	4.9
1956	27.4	8.6	24.5	18.4	31.8	6.0	15.7	4.1	15.2	4.3
1957	26.7	8.5	24.4	18.6	31.5	6.3	15.1	3.8	14.1	4.0
1958	25.8	8.4	24.6	18.7	31.7	6.0	15.3	3.4	14.0	3.6
1959	24.9	8.4	24.4	18.5	31.1	6.1	14.8	3.6	14.8	4.1
1960	24.9	8.7	24.1	18.4	31.5	5.9	15.4	3.8	15.6	4.3
1961	24.4	8.5	23.9	18.0	30.0	5.2	14.2	4.0	16.0	4.1
1962	23.0	8.8	23.9	17.8	30.6	5.0	14.8	3.1	16.4	4.4
1963	22.3	9.0	23.2	17.4	29.8	4.6	14.2	4.0	17.0	4.4
1964	21.6	8.9	23.1	17.5	29.8	4.6	14.1	3.5	18.2	4.8
1965	20.3	9.0	23.6	17.5	30.4	4.6	14.9	3.2	19.8	5.0
1966	19.9	9.0	22.6	17.1	29.2	4.9	13.8	3.3	20.2	5.2
1967	18.9	8.7	22.1	16.7	28.4	4.4	13.5	3.2	19.6	5.9
1968	18.3	8.9	21.6	16.5	27.8	3.1	13.0	2.8	21.0	5.9
1969	19.0	8.8	20.2	15.4	26.7	2.8	13.1	1.6	21.4	6.5
1970	19.3	8.6	20.3	16.6	26.0	2.5	12.0	1.7	20.7	6.7
1971	18.0	8.6	19.5	14.9	25.2	2.4	11.9	2.0	20.5	7.1
1972	16.3	8.8	19.1	14.4	24.9	2.2	12.1	2.4	21.0	7.9
1973	15.6	8.7	18.1	13.4	23.7	2.9	11.9	1.8	20.9	8.2[3]
1974	15.1	8.4	17.4	12.6	21.3	1.7	10.6	1.4	19.3	8.8[3]
1975	14.6	8.1	16.5	11.7	19.9	1.4	10.3	1.2	18.1	8.9
1976	14.4	8.3	15.1	10.8	18.9	1.4	9.7	1.1	18.2	9.5
1977	15.2	8.1	14.1	9.9	17.6	1.1	9.3	0.1	18.9	9.4

[1]For years prior to 1950 deaths under 1 month of age are included in deaths under 28 days.
[2]For 1910 through 1921 deaths due to immaturity also include deaths from congenital debility.
[3]Estimate.

TABLE 4.3 Number of Live Births by Age of Mother

Michigan Residents, 1920-1977

YEAR	AGE OF MOTHER									
	ALL AGES[1]	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	AGE NOT STATED
1920	92,740	34	8,129	26,344	26,251	17,521	10,427	3,523	336	175
1921	96,322	39	8,747	26,583	27,292	18,433	11,150	3,572	337	169
1922	90,209	28	8,125	24,575	25,154	17,690	10,584	3,485	343	225
1923	93,066	37	8,725	25,887	25,459	18,072	10,770	3,476	382	258
1924	98,025	38	9,877	28,000	25,781	18,707	11,395	3,682	321	224
1925	99,220	62	10,248	28,116	26,204	18,869	11,406	3,695	379	241
1926	98,781	76	10,496	28,479	25,876	18,444	11,219	3,568	254	269
1927	100,178	59	10,685	29,302	25,707	18,790	11,287	3,722	332	294
1928	97,797	54	10,788	28,895	25,003	17,953	10,913	3,558	315	318
1929	99,134	56	11,312	30,582	25,557	16,957	10,555	3,523	293	299
1930	99,325	60	11,476	29,956	25,861	17,125	10,684	3,582	291	290
1931	90,929	61	10,109	27,255	23,806	15,937	9,905	3,317	302	237
1932	85,736	62	9,297	25,686	22,608	14,988	9,314	3,250	291	240
1933	80,923	52	8,642	23,874	21,618	14,298	8,795	3,173	261	210
1934	83,925	48	9,039	25,458	22,507	14,968	8,391	3,050	259	205
1935	87,446	47	9,808	27,631	22,938	15,026	8,473	3,029	284	210
1936	88,427	53	9,764	28,681	23,584	14,814	8,194	2,866	274	197
1937	91,539	54	10,524	30,532	24,366	15,022	7,949	2,653	242	197
1938	96,963	64	11,024	32,581	26,116	15,690	8,397	2,698	253	140
1939	94,302	51	10,368	31,036	26,095	15,976	8,021	2,416	209	130
1940	99,021	51	10,671	32,960	27,860	16,549	8,146	2,390	202	192
1941	107,458	50	11,309	36,833	31,067	17,132	8,351	2,361	200	155
1942	123,886	66	12,721	43,947	36,034	19,367	8,985	2,445	202	119
1943	125,778	67	11,934	41,627	37,773	21,449	9,980	2,615	184	149
1944	114,700	76	10,113	36,096	33,654	21,094	10,636	2,714	182	135
1945	112,655	73	9,294	32,790	33,143	22,831	11,185	2,970	229	140
1946	139,277	72	10,899	45,999	41,985	25,184	11,811	3,002	223	102
1947	161,085	91	15,594	55,954	47,793	26,296	12,009	3,073	182	93
1948	154,730	95	16,245	53,520	45,059	25,268	11,391	2,888	173	91
1949	157,178	117	16,404	53,508	46,363	25,971	11,565	2,806	181	63
1950	160,955	111	16,310	53,442	48,186	27,422	12,392	2,831	169	92
1951	173,506	104	17,974	57,340	52,044	29,674	13,086	3,040	160	84
1952	178,634	134	17,206	58,012	54,198	31,756	13,880	3,176	220	52
1953	182,810	166	18,510	58,070	54,734	32,948	14,798	3,350	190	44
1954	192,322	208	20,522	50,776	55,962	35,152	15,862	3,598	220	32
1955	196,623	195	21,417	61,952	56,462	35,968	16,554	3,862	198	15
1956	206,226	192	22,808	66,332	58,392	36,870	17,282	4,172	164	14
1957	208,808	190	23,798	67,086	58,424	36,960	17,956	4,160	200	14
1958	202,900	222	23,034	65,834	55,130	36,278	17,892	4,296	196	18
1959	198,576	200	21,922	65,426	53,434	34,934	18,030	4,424	198	8
1960	195,056	186	22,786	65,108	51,842	33,228	17,410	4,288	202	6
1961	192,825	212	23,891	64,336	50,277	32,456	17,067	4,363	203	20
1962	182,790	268	22,702	62,243	47,109	29,817	16,160	4,250	224	17
1963	178,871	210	21,686	62,834	46,263	28,364	15,117	4,359	229	9
1964	175,103	264	22,526	62,196	44,671	26,542	14,509	4,162	220	13
1965	166,464	267	24,653	59,439	40,693	23,767	13,528	3,886	211	20
1966	165,794	310	28,690	60,711	39,225	21,205	11,846	3,547	223	37
1967	162,756	316	27,267	61,541	40,052	19,840	10,479	3,059	178	24
1968	159,058	400	26,390	60,072	41,561	18,613	9,095	2,739	163	25
1969	165,760	421	28,061	63,376	44,615	18,535	8,157	2,433	134	28
1970	171,667	489	29,764	65,892	46,262	19,003	7,904	2,223	118	12
1971	162,244	472	28,480	62,367	43,639	18,259	6,975	1,926	112	14
1972	146,854	503	28,108	54,199	40,442	16,133	5,805	1,555	95	14
1973	141,550	569	27,808	51,284	39,845	15,520	5,163	1,277	62	22
1974	137,414	501	25,977	49,975	40,215	15,317	4,291	1,063	50	25
1975	133,931	463	24,509	48,675	40,061	14,891	4,273	982	54	23
1976	131,378	404	22,593	47,161	41,412	14,893	4,053	799	47	16
1977	138,416	426	22,585	49,740	43,346	17,293	4,178	771	51	26

[1]Total live births for the years 1920 through 1959 differ from figures in Table 4.1 as they are derived from outside sources. Live births by age of mother were not tabulated in Michigan prior to 1960. These data were obtained from the following sources.

YEAR SOURCE

1920-1923 Unpublished Tables from the National Center for Health Statistics.
1924-1932 Bureau of the Census publication, *Birth, Stillbirth and Infant Mortality Statistics for Birth Registration Areas of the United States*.
1933-1936 Unpublished Tables from the National Center for Health Statistics.
1937-1949 Bureau of the Census publication, *Vital Statistics of the United States* series.
1950-1959 Department of Health Education and Welfare publication, *Vital Statistics of the United States* series.

TABLE 4.4 Live Birth Rates by Five Year Age Groups of Mother

Michigan Residents 1920-1977

(Live Birth Rates are per 1,000 women per year, Total Fertility Rate is total children to 1,000 women in their lifetime assuming constant Live Birth Rates)

YEAR	AGE OF MOTHER								TOTAL FERTILITY RATE
	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+[1]	
1920	0.2	55.7	173.1	164.0	124.2	83.8	34.3	3.8	3,195.5
1921	0.2	56.9	167.3	165.5	125.8	84.8	32.8	3.6	3,184.5
1922	0.2	50.8	149.6	149.1	117.3	77.1	30.7	3.5	2,891.5
1923	0.2	52.6	152.6	147.5	116.5	75.4	29.3	3.8	2,889.5
1924	0.2	57.4	160.0	146.1	117.3	76.7	29.9	3.1	2,953.5
1925	0.3	57.4	155.9	145.4	115.2	73.9	28.8	3.5	2,902.0
1926	0.4	56.9	153.3	140.5	109.7	70.1	26.8	3.2	2,804.5
1927	0.3	56.0	153.3	136.8	108.9	68.1	27.0	2.9	2,766.5
1928	0.2	54.8	147.1	130.3	101.5	63.7	25.0	2.6	2,626.0
1929	0.2	55.7	151.5	130.6	93.6	59.6	23.9	2.4	2,587.5
1930	0.3	55.2	145.5	130.2	92.8	58.9	23.7	2.3	2,544.5
1931	0.3	47.8	130.4	118.3	85.3	54.3	21.5	2.3	2,301.0
1932	0.3	43.4	121.5	111.2	79.4	50.8	20.8	2.2	2,148.0
1933	0.2	39.7	111.6	105.2	75.0	47.7	20.0	1.9	2,006.5
1934	0.2	41.0	117.6	108.4	77.8	45.3	18.9	1.8	2,055.0
1935	0.2	43.9	126.2	109.4	77.4	45.5	18.5	2.0	2,115.5
1936	0.2	43.1	129.5	111.4	75.5	43.8	17.3	1.8	2,113.0
1937	0.2	45.9	136.4	113.9	75.9	42.3	15.8	1.6	2,160.0
1938	0.3	47.4	143.9	120.9	78.5	44.4	15.8	1.6	2,264.0
1939	0.2	44.1	135.6	119.6	79.2	42.3	14.0	1.3	2,181.5
1940	0.2	44.9	142.8	126.8	81.5	42.8	13.7	1.2	2,269.5
1941	0.2	48.1	157.8	137.1	91.6	42.5	13.2	1.2	2,408.5
1942	0.3	54.5	186.6	155.3	89.9	44.7	13.4	1.2	2,729.5
1943	0.3	51.6	175.1	159.0	97.1	48.6	14.1	1.1	2,734.5
1944	0.3	44.1	150.5	138.5	93.2	50.6	14.3	1.0	2,462.5
1945	0.3	40.8	135.5	133.4	98.5	52.1	15.4	1.3	2,386.5
1946	0.3	48.3	188.5	165.3	106.2	53.8	15.3	1.2	2,894.5
1947	0.4	69.7	227.3	184.2	108.4	53.6	15.4	1.0	3,300.0
1948	0.4	73.2	215.5	170.0	101.9	49.8	14.2	1.0	3,130.0
1949	0.5	74.6	214.0	171.4	102.5	49.6	14.1	1.0	3,138.5
1950	0.5	74.6	212.0	175.5	106.5	52.3	13.6	0.9	3,179.5
1951	0.4	79.1	229.0	192.2	114.4	53.9	14.1	0.8	3,419.5
1952	0.5	73.5	233.0	202.5	121.7	56.1	14.4	1.1	3,514.0
1953	0.6	76.8	234.5	207.0	125.5	58.7	14.9	0.9	3,594.5
1954	0.7	82.8	246.8	214.1	133.1	61.8	15.6	1.1	3,780.0
1955	0.6	84.1	253.0	218.6	135.4	63.4	16.4	0.9	3,862.0
1956	0.6	87.2	272.4	228.9	138.0	65.0	17.4	0.8	4,051.5
1957	0.6	88.6	277.1	231.8	137.6	66.4	17.0	0.9	4,100.0
1958	0.6	83.6	273.4	221.5	134.3	65.0	17.2	0.9	3,982.5
1959	0.6	77.6	273.3	217.4	128.6	64.4	17.3	0.9	3,900.5
1960	0.5	79.3	273.1	213.0	121.8	61.4	16.6	0.9	3,833.0
1961	0.6	78.1	252.0	200.7	120.2	61.3	16.8	0.9	3,653.0
1962	0.7	70.7	231.5	183.9	111.4	58.9	16.3	0.9	3,371.5
1963	0.5	64.6	222.5	175.9	107.0	55.9	16.6	0.9	3,219.5
1964	0.6	64.2	210.1	167.0	101.0	54.4	15.8	0.9	3,070.0
1965	0.6	67.4	192.0	149.0	91.2	51.5	14.7	0.8	2,836.0
1966	0.7	75.4	187.9	140.7	82.1	45.8	13.4	0.9	2,734.5
1967	0.7	69.0	182.8	140.8	77.6	41.2	11.5	0.7	2,621.5
1968	0.9	64.3	171.5	143.2	73.4	36.3	10.2	0.6	2,502.0
1969	0.9	66.0	174.2	150.8	73.8	33.1	9.1	0.5	2,542.0
1970	1.0	68.2	176.2	154.2	76.2	32.4	8.3	0.4	2,584.5
1971	1.0	63.5	157.3	141.4	71.8	28.8	7.3	0.4	2,357.5
1972	1.0	62.5	136.4	130.7	63.4	23.9	5.8	0.3	2,120.0
1973	1.2	60.1	131.9	120.9	55.8	22.1	4.7	0.2	1,984.5
1974	1.1	55.4	126.0	120.2	52.4	18.1	4.5	0.2	1,889.5
1975	1.0	51.7	118.8	116.8	49.2	17.7	4.3	0.2	1,798.5
1976	0.9	47.7	122.1	120.8	48.7	18.4	4.3	0.2	1,815.5
1977	0.9	47.6	127.4	130.5	52.8	17.6	4.2	0.2	1,906.0

[1]Age-specific birth rates for 45-49 based on births to women aged 45 and over.
SOURCE: Population figures used for 1920-1970 rates are from *General Population Characteristics, Michigan*, USBC, 1971, with arithmatic extrapolation between census years. 1971-1977 population source, see Table 4.16.

TABLE 4.5

REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1977

Year	Diphtheria	Streptococcal Sore Throat (including Scarlet Fever)	Smallpox	Typhoid Fever	Whooping Cough	Measles	Hepatitis, infectious and Serum	Tuberculosis (all forms) [2]	Meningococcal infections [1]	Poliomyelitis	Syphilis	Gonorrhea	Chancroid
1900	2,706	6,734	694	5,122	3,375	20,356		2,721	654				
1901	2,498	7,726	5,088	3,002	2,955	4,629		2,915	506				
1902	2,993	6,582	7,086	2,456	3,534	11,978		2,658	528				
1903	3,670	5,353	6,341	2,840	4,172	8,941		2,745	525				
1904	3,510	4,088	5,753	3,028	1,779	10,386		2,928	448				
1905	2,159	2,286	2,985	2,774	1,196	6,061		2,590	577				
1906	3,648	3,066	1,240	3,163	1,364	7,403		2,653	533				
1907	2,935	2,514	1,712	1,953	872	12,139		2,699	575				
1908	2,658	3,087	2,306	2,656	1,248	4,775		2,705	487				
1909	3,109	5,153	1,533	2,694	1,054	9,047		3,423	457				
1910	3,433	6,501	3,319	3,361	1,136	13,934		4,415	522	104			
1911	3,762	5,177	898	2,660	1,897	9,639		5,254	478	68			
1912	3,294	4,533	1,127	2,847	1,255	2,834		1,958	88	78			
1913	2,505	4,140	1,995	2,253	929	9,185		1,920	165	56			
1914	5,149	3,769	1,527	2,167	1,822	11,356		2,566	205	49			
1915	4,386	3,402	1,094	1,956	2,258	4,438		3,648	107	95			
1916	5,625	6,932	1,581	2,513	1,837	12,143		7,076	163	598			
1917	8,499	14,322	3,674	1,723	3,211	14,472		4,856	75	91			
1918	6,128	5,944	5,241	1,339	2,563	6,726		3,655	95	121			
1919	7,896	6,269	2,381	1,254	1,829	8,885		4,231	75	155	5,077	7,910	186
1920	10,360	10,280	4,818	1,421	7,171	22,364		4,994	203	67	8,117	11,463	262
1921	12,075	10,893	4,512	1,837	6,696	3,043		5,708	173	483	7,421	9,774	153
1922	8,513	9,687	1,230	1,108	5,642	12,107		5,573	159	43	7,900	9,717	90
1924	6,011	12,989	4,527	782	7,617	30,041		5,471	186	39	10,480	9,597	235
1925	3,925	12,303	784	962	4,364	18,290		5,570	157	647	13,000	10,490	183
1926	5,377	12,681	549	583	7,576	10,332		5,785	128	99	14,668	10,660	104
1927	4,575	11,011	1,467	581	8,776	39,946		5,387	96	107	14,872	10,707	103
1928	3,724	10,486	1,335	390	6,818	8,303		5,406	138	282	15,713	9,318	107
1929	4,618	14,245	2,410	310	9,700	27,039		5,885	276	77	15,323	8,592	100
1930	3,206	11,174	2,375	504	9,340	18,040		6,248	1,864	180	16,606	9,661	333
1931	1,831	13,023	915	424	7,937	28,129		5,128	901	208	16,538	8,554	163
1932	1,188	15,255	222	515	11,448	6,212		6,132	293	1,137	14,662	7,843	170
1933	1,152	16,419	46	453	13,091	42,129		7,103	129	112	11,969	6,963	140
1934	614	19,238	59	486	11,720	21,654		6,624	86	93	7,691	6,447	85
1935	645	11,849	16	355	11,255	6,528		5,264	53	230	6,483	6,188	132
1936	661	12,650	32	287	13,427	79,061		4,642	113	614	6,416	6,372	110
1937	842	24,798	152	241	14,287	2,453		5,157	120	152	6,401	6,460	133
1938	619	18,362	274	285	11,426	6,154		6,469	87	421	8,708	7,072	244
1939	452	15,836	371	177	14,563	79,400		6,335	69	59	14,684	7,046	341
1940	264	10,366	76	120	8,997	12,948		6,119	46	90	13,144	6,364	286
1941	242	756	114	147	11,757	20,206		6,063	49	1,228	9,999	7,650	218
1942	243	503	17	74	16,512	70,748		5,371	49	270	11,370	8,767	359
1943	261	3,044	18	115	11,602	8,589		5,720	66	162	12,461	8,753	276
1944	419	8,963	10	78	12,091	51,764		6,546	757	255	15,933	9,526	260
1945	630	9,304	16	59	4,049	26,711		6,413	857	684	17,288	11,987	185
1946	385	5,977	3	85	5,339	6,328	134	5,471	270	215	16,046	12,565	244
1947	238	4,834	1	77	8,116	42,261	34	5,548	185	1,091	18,051	12,635	206
1948	126	5,934	—	49	10,472	9,574	14	6,470	113	646	15,276	10,989	216
1949	119	8,852	—	48	2,668	42,952	9	6,109	107	775	12,100	9,448	465
1950	84	4,665	—	43	4,157	20,279	28	5,953	120	2,909	8,740	9,427	336
1951	48	8,181	—	33	9,184	38,245	48	5,538	133	2,029	8,830	8,678	202
1952	45	8,325	—	53	3,156	15,227	325	6,144	138	1,463	6,532	8,494	187
1953	12	5,885	—	31	1,992	32,941	283	6,152	169	3,912	7,377	7,691	58
1954	57	5,142	—	30	2,932	23,334	868	5,643	151	2,346	5,619	8,790	43
1955	59	5,880	—	24	5,620	40,725	1,419	5,764	150	2,168	4,686	9,940	47
1956	220	7,349	—	56	4,249	23,882	1,244	5,488	170	1,177	4,865	10,306	58
1957	130	7,193	—	12	1,907	41,956	814	5,515	182	656	4,785	9,598	52
1958	6	5,380	—	18	1,363	19,070	657	5,011	175	498	4,571	8,428	97
1959	3	9,452	—	8	1,233	41,448	688	5,587	228	1,228	4,267	8,621	178
1960	9	9,287	—	14	3,001	12,234	1,136	4,743	141	448	3,421	8,033	136
1961	3	8,347	—	7	1,129	36,161	2,113	4,127	169	88	3,647	8,372	112
1962	4	8,116	—	12	639	29,391	4,607	3,838	253	40	3,309	9,505	102
1963	5	11,964	—	14	1,756	25,303	3,280	3,474	139	21	4,331	11,654	75
1964	1	17,228	—	13	1,410	48,752	2,661	3,298	104	18	5,512	11,043	98
1965	—	14,622	—	7	957	30,897	2,472	3,047	80	3	5,220	12,028	106
1966	1	13,862	—	7	612	28,132	2,625	3,069	107	1	5,638	14,319	95
1967	1	13,269	—	8	653	15,251	2,589	3,259	135	1	5,842	15,424	114
1968	—	10,101	—	1	1,058	1,048	1,915	2,951	76	3	5,581	17,088	78
1969	—	9,763	—	6	429	353	2,356	2,618	94	3	5,351	18,153	105
1970	—	11,863	—	14	192	401	3,359	2,133	114	1	3,809	18,534	103
1971	1	11,244	—	10	195	1,834	4,594	1,992	69	2	3,920	20,359	118
1972	1	13,304	—	7	140	2,659	4,828	1,789	64	—	4,800	22,260	93
1973	—	24,467	—	14	116	2,353	4,322	1,632	55	1	4,891	24,750	175
1974	—	31,802	—	11	86	4,552	3,872	1,473	54	—	4,375	31,086	217
1975	1	23,777	—	10	104	2,365	3,599	1,431	54	2	2,722	32,067	171
1976	—	24,937	—	10	98	3,253	2,877	1,271	76	—	1,638	32,583	98
1977	—	31,047	—	13	70	6,139	2,645	1,349	65	1	1,089	34,836	37
					73	1,392	2,686	1,290	51	—	1,185	36,794	61

[1]Meningococcal infections—Prior to 1952 data were for meningi[illegible] meningitis. Tuberculosis, syphilis, gonorrhea and chancroid are resident cases.
[2]Effective January 1975, a new diagnostic classification system [illegible]culosis was adopted. As a result, case counts and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

TABLE 4.6

CASE RATES OF CERTAIN REPORTED COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1977

(Rates per 100,000 Population)

Year	Diptheria	Streptococcal Sore Throat (including Scarlet Fever)	Smallpox	Typhoid Fever	Whooping Cough	Measles	Infectious Hepatitis & Serum	Tuberculosis (all forms) [2]	Meningococcal Infections [1]	Poliomyelitis	Syphilis	Gonorrhea	Chancroid
1900	111.8	278.2	28.7	211.6	139.4	840.8		112.4	27.0				
1901	101.5	314.1	206.8	122.0	120.1	188.2		118.5	20.6				
1902	119.8	263.4	283.6	98.3	141.4	479.3		106.4	21.1				
1903	144.6	210.9	249.9	111.9	164.4	352.3		108.2	20.7				
1904	136.2	158.7	223.3	117.5	69.0	403.1		113.6	17.4				
1905	82.5	87.4	114.1	106.1	45.7	231.7		99.0	22.1				
1906	137.4	115.5	46.7	119.2	51.4	278.9		99.9	20.1				
1907	109.0	93.3	63.6	72.5	32.4	450.7		100.2	21.3				
1908	97.3	113.0	84.4	97.2	45.7	174.8		99.0	17.8				
1909	112.2	185.9	55.3	97.2	38.0	326.5		123.5	16.5				
1910	122.2	231.3	118.1	119.6	40.4	495.8		157.1	18.6	3.7			
1911	129.9	178.8	31.0	91.8	65.5	332.8		181.4	16.5	2.3			
1912	110.5	152.0	37.8	95.5	42.1	95.0		65.7	3.0	2.6			
1913	179.5	135.0	65.0	73.4	30.3	299.4		62.6	5.4	1.8			
1914	163.3	119.5	48.4	68.7	57.8	360.1		81.4	6.5	1.6			
1915	135.4	105.0	33.8	60.4	69.7	137.0		112.6	3.3	2.9			
1916	169.2	208.5	47.5	75.6	55.2	365.2		212.8	4.9	18.0			
1917	249.2	419.9	107.7	50.5	94.1	424.3		142.4	2.2	2.7			
1918	175.2	170.0	149.9	38.3	73.3	192.4		104.5	2.7	3.5			
1919	220.4	175.0	66.5	35.0	51.1	248.0		118.1	2.1	4.3	141.7	220.8	5.2
1920	282.4	280.2	131.3	38.7	195.5	609.6		136.1	5.5	1.8	221.3	312.5	7.1
1921	318.9	287.7	119.2	48.5	176.9	80.4		150.8	4.6	12.8	196.0	258.2	4.0
1922	218.1	248.2	31.5	28.4	144.5	310.2		142.8	4.1	1.1	202.4	248.9	2.3
1923	192.1	320.1	57.5	24.4	189.5	747.2		136.1	4.6	1.0	260.7	238.7	5.8
1924	145.3	313.9	109.4	18.9	105.5	442.0		134.6	3.8	15.6	314.2	253.5	4.4
1925	92.2	289.1	18.4	22.6	178.0	242.8		135.9	3.0	2.3	344.7	250.5	2.4
1926	123.0	290.0	12.6	13.3	200.7	913.5		123.2	2.2	2.4	340.1	244.9	2.4
1927	101.9	245.2	32.7	12.9	151.8	184.9		120.4	3.1	6.3	349.9	207.5	2.4
1928	80.8	227.6	29.0	8.5	210.5	586.9		127.7	6.0	1.7	332.6	186.5	2.2
1929	97.7	301.5	51.0	6.6	197.7	381.8		132.2	39.4	3.8	351.4	204.5	7.0
1930	66.2	230.8	49.0	10.4	163.9	580.9		105.9	18.6	4.3	341.5	176.6	3.4
1931	37.5	266.7	18.7	8.7	234.4	127.2		125.6	6.0	23.3	300.2	160.6	3.5
1932	24.1	309.7	4.5	10.4	265.8	855.4		144.2	2.6	2.3	243.0	141.4	2.8
1933	23.2	330.6	0.9	9.1	236.0	436.0		133.4	1.7	1.9	154.9	129.8	1.7
1934	12.3	384.2	1.0	9.7	224.8	130.4		105.1	1.1	4.6	129.5	123.6	2.6
1935	12.8	234.7	0.3	7.0	265.9	1,565.8		91.9	2.2	12.2	127.1	126.2	2.2
1936	13.0	248.5	0.6	5.6	280.7	48.2		101.3	2.4	3.0	125.7	126.9	2.6
1937	16.4	483.2	3.0	4.7	222.6	119.9		126.1	1.7	8.2	169.7	137.8	4.8
1938	12.0	354.9	5.3	5.5	281.5	1,534.8		122.5	1.3	1.1	283.8	136.2	6.6
1939	8.7	303.7	7.1	3.4	172.5	248.3		117.3	0.9	17.3	252.0	122.0	5.5
1940	5.0	197.2	1.4	2.3	223.7	384.4		115.3	0.9	23.4	190.2	145.5	4.1
1941	4.5	161.0	2.1	2.7	303.7	1,301.1		98.8	0.9	5.0	209.1	161.2	6.6
1942	4.4	135.5	0.3	1.3	209.5	154.7		103.3	1.2	2.9	225.0	158.0	5.0
1943	5.2	93.8	0.3	2.1	224.8	962.6		121.7	14.1	4.7	296.3	177.1	4.8
1944	7.8	166.7	0.2	1.5	75.3	496.7		119.4	15.9	16.4	321.5	222.9	3.4
1945	11.6	171.2	0.3	1.1	98.2	116.4	2.5	100.7	5.0	4.0	295.2	231.2	4.5
1946	6.7	104.7	0.1	1.5	142.2	740.3	0.6	97.2	3.2	19.1	316.2	221.3	3.6
1947	3.9	79.6	0.0	1.3	172.5	157.8	0.2	106.6	1.9	10.6	251.7	181.1	3.6
1948	2.0	95.8	—	0.8	43.1	693.3	0.1	98.6	1.7	12.5	195.3	152.5	7.5
1949	1.9	139.4	—	0.8	65.4	319.3	0.4	93.7	1.9	45.8	137.6	148.4	5.3
1950	1.3	73.2	—	0.7	144.1	600.2	0.8	86.9	2.1	31.8	138.6	136.2	3.2
1951	0.7	125.0	—	0.5	48.2	232.7	5.0	93.9	2.1	22.4	99.8	129.8	2.9
1952	0.7	124.1	—	0.8	29.7	491.1	4.2	91.7	2.5	58.3	110.0	114.7	0.9
1953	0.2	85.9	—	0.5	42.8	340.5	12.7	82.4	2.2	34.2	82.0	128.3	0.6
1954	0.8	73.2	—	0.4	80.0	579.8	20.2	82.1	2.1	30.9	66.7	141.5	0.7
1955	0.8	81.3	—	0.3	58.7	330.0	17.2	75.8	2.3	16.3	67.2	142.4	0.8
1956	2.9	97.8	—	0.7	25.4	558.4	10.8	73.4	2.4	8.7	63.7	127.7	0.7
1957	1.7	92.2	—	0.2	17.5	244.4	8.4	64.2	2.2	5.4	58.6	108.0	1.2
1958	0.1	68.4	—	0.2	15.7	526.9	8.7	71.0	2.9	15.6	54.2	109.6	2.3
1959	0.0	118.7	—	0.1	37.7	153.7	14.3	59.6	1.8	5.6	43.0	100.9	1.7
1960	0.1	118.7	—	0.2	14.4	462.2	27.0	52.8	2.2	1.1	46.6	107.0	1.4
1961	0.0	105.6	—	0.1	8.1	371.9	58.3	48.6	3.2	0.5	41.9	120.3	1.3
1962	0.1	102.2	—	0.2	22.1	318.7	41.3	43.8	1.8	0.3	54.6	146.8	0.9
1963	0.1	149.0	—	0.2	17.6	607.1	33.1	41.1	1.3	0.2	68.6	137.5	1.2
1964	0.0	212.7	—	0.2	11.8	381.4	30.5	37.6	1.0	0.0	64.4	148.5	1.3
1965	—	178.3	—	0.1	7.5	343.1	32.0	37.4	1.3	0.0	68.8	174.6	1.2
1966	0.0	166.7	—	0.1	7.9	183.4	31.1	39.2	1.6	0.0	70.3	185.5	1.4
1967	0.0	154.0	—	0.1	12.3	12.2	22.2	34.2	0.9	0.0	64.8	198.4	0.9
1968	—	116.4	—	0.0	4.9	4.1	27.2	30.2	1.1	0.0	61.7	209.3	1.2
1969	—	111.8	—	0.1	2.2	4.6	38.5	24.4	1.3	0.0	43.6	212.2	1.2
1970	—	133.7	—	0.2	2.2	20.7	51.8	22.4	0.8	0.0	44.2	229.4	1.3
1971	0.0	125.0	—	0.1	1.6	29.6	53.7	19.9	0.7	—	53.4	247.4	1.0
1972	0.0	147.6	—	0.1	1.3	26.1	48.0	18.1	0.6	0.0	54.3	274.6	1.9
1973	—	270.0	—	0.2	0.9	50.2	42.7	16.3	0.6	—	48.3	343.1	2.4
1974	—	349.5	—	0.1	1.1	26.0	39.6	15.7	0.6	0.0	29.9	352.5	1.9
1975	0.0	259.7	—	0.1	1.1	35.5	31.4	13.9	0.8	—	17.9	355.8	1.1
1976	—	273.9	—	0.1	0.8	67.4	29.1	14.8	0.7	0.0	12.0	382.6	0.4
1977	—	340.1	—	0.1	0.8	15.2	29.4	14.1	0.6	—	13.0	403.0	0.7

[1] Meningococcal infections—Prior to 1952 data were for meningococcic meningitis.
[2] Effective January, 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, case counts and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.
SOURCE: Bureau of Disease Control and Laboratory Services, Division of Epidemiology, Mich. Dept. of Public Health.

TABLE 4.7

NUMBER OF DEATHS AND DEATH RATES FOR CERTAIN COMMUNICABLE DISEASES
MICHIGAN RESIDENTS, 1900-1977

(Rates per 100,000 Population)

Year	Diptheria		Strep. Sore Throat Incl. Scarlet Fever		Smallpox		Typhoid Fever		Whooping Cough		Measles		TB of the Respiratory System		Tuberculosis[2] (all forms)		Poliomyelitis		Syphilis[1]		Gonorrhea	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1900	529	21.9	272	11.2	9	0.4	869	35.9	208	8.6	342	14.1	2,018	83.4	2,500	103.3						
1901	502	20.4	312	12.7	27	1.1	645	26.2	163	6.6	79	3.2	2,152	87.5	2,548	103.6			88	3.6		
1902	504	20.2	277	11.1	42	1.7	608	24.3	289	11.6	238	9.5	2,088	83.6	2,462	98.5			114	4.6		
1903	686	27.0	200	7.9	29	1.1	606	23.9	383	15.1	176	6.9	2,155	84.9	2,562	101.0			130	5.2		
1904	5[illegible]	20.0	210	8.1	26	1.0	641	24.9	148	5.7	194	7.5	2,306	89.5	2,761	107.2			101	4.0		
1905	478	18.3	123	4.7	74	2.8	636	24.3	131	5.0	123	4.7	2,288	87.5	2,732	104.4			89	3.5		
1906	472	17.8	227	8.6	3	0.1	721	27.2	469	17.7	251	9.5	2,303	86.8	2,737	103.1			89	3.4		
1907	421	15.6	159	5.9	8	0.3	594	22.1	223	8.3	256	9.5	2,338	86.8	2,728	101.3			94	3.6		
1908	343	12.6	194	7.1	11	0.4	687	25.1	305	11.2	121	4.4	2,249	82.3	2,706	99.0			118	4.5		
1909	395	14.3	275	9.9	4	0.1	653	23.6	217	7.8	270	9.7	2,237	80.7	2,629	94.9			127	4.8		
1910	495	17.6	297	10.6	121	4.3	654	23.3	318	11.3	251	8.9	2,273	80.9	2,756	98.1	52	1.9	65	2.3		
1911	473	16.3	208	7.2	7	0.2	551	19.0	254	8.8	200	6.9	2,284	78.9	2,766	95.5	55	1.9	104	3.6		
1912	465	15.6	186	6.2	3	0.1	534	17.9	252	8.5	118	4.0	2,289	76.8	2,744	92.0	48	1.7	90	3.1		
1913	676	22.0	283	9.2	5	0.2	538	17.5	292	9.5	258	8.4	2,243	73.1	2,703	88.1	43	1.5	136	4.6		
1914	507	16.1	177	5.6	2	0.1	400	12.7	304	9.6	180	5.7	2,325	73.7	2,799	88.8	41	1.4	160	5.3		
1915	354	10.9	107	3.3	5	0.2	353	10.9	236	7.3	101	3.1	2,527	78.0	2,986	92.2	36	1.2	163	5.3		
1916	507	15.2	177	5.3	2	0.1	424	12.8	228	6.9	363	10.9	2,573	77.4	3,070	92.3	141	4.6	206	6.7		
1917	851	24.9	340	10.0	9	0.3	386	11.3	360	10.6	259	7.6	2,779	81.5	3,310	97.0	44	1.4	224	7.1		
1918	686	19.6	181	5.2	18	0.5	337	9.6	496	14.2	270	7.7	3,059	87.5	3,612	103.3	58	1.8	290	9.1		
1919	764	21.3	179	5.0	10	0.3	272	7.6	172	4.8	183	5.1	2,620	73.1	3,127	87.3	80	2.2	299	8.2		
1920	888	24.2	305	8.3	14	0.4	297	8.1	511	13.9	436	11.9	2,645	72.1	3,149	85.8	30	0.8	314	8.4		
1921	954	25.2	334	8.8	12	0.3	285	7.5	316	8.3	58	1.5	2,28[illegible]	60.4	2,736	72.3	100	2.6	226	5.9	14	0.4
1922	620	15.9	217	5.6	20	0.5	192	4.9	232	5.9	232	5.9	2,232	57.2	2,654	68.0	21	0.5	186	4.7	6	0.2
1923	675	16.8	304	7.6	13	0.3	202	5.0	323	8.0	258	6.4	2,410	59.9	2,836	70.6	18	0.5	262	6.8	5	0.1
1924	470	11.4	265	6.4	226	5.5	149	3.6	169	4.1	221	5.3	2,474	59.8	2,952	71.3	116	3.0	271	7.0	13	0.3
1925	358	8.4	208	4.9	22	0.5	157	3.7	260	6.1	69	1.6	2,410	56.6	2,830	66.5	31	0.7	282	6.6	27	0.6
1926	677	15.5	235	5.4	4	0.1	119	2.7	355	8.1	577	13.2	2,601	59.5	3,041	69.5	34	0.8	327	7.5	12	0.3
1927	516	11.5	168	3.7	—	—	94	2.1	201	4.5	67	1.5	2,514	56.0	2,952	65.7	69	1.5	305	6.8	16	0.4
1928	384	8.3	178	3.9	2	0.0	83	1.8	219	4.8	303	6.6	2,647	57.4	3,108	67.5	27	0.6	384	8.4	19	0.4
1929	498	10.5	145	3.1	9	0.2	81	1.7	255	5.4	146	3.1	2,685	56.8	3,140	66.5	50	1.1	397	8.4	19	0.4
1930	299	6.2	130	2.7	9	0.2	87	1.8	176	3.6	231	4.8	2,443	50.5	2,912	60.1	39	0.8	395	8.2	12	0.2
1931	172	3.5	122	2.5	4	0.1	73	1.5	190	3.9	28	0.6	2,263	46.3	2,660	54.5	108	2.2	361	7.4	3	0.1
1932	106	2.2	112	2.3	1	0.0	56	1.1	199	4.0	183	3.7	2,101	42.7	2,463	50.0	23	0.5	377	7.7	2	0.0
1933	112	2.3	157	3.2	—	—	50	1.0	153	3.1	111	2.2	1,996	40.2	2,348	47.3	5	0.1	327	6.6	7	0.1
1934	36	0.8	171	3.4	—	—	65	1.3	141	2.8	36	0.7	1,909	38.1	2,199	43.9	25	0.5	402	8.0	10	0.2
1935	58	1.1	98	1.9	—	—	34	0.7	132	2.6	184	3.6	1,741	34.5	2,044	40.5	32	0.6	393	7.8	3	0.1
1936	52	1.0	114	2.2	—	—	37	0.7	107	2.1	12	0.2	1,816	35.7	2,100	41.3	21	0.4	394	7.7	6	0.1
1937	72	1.4	148	2.9	1	0.0	29	0.6	132	2.6	11	0.2	1,860	36.2	2,119	41.3	51	1.0	401	7.8	8	0.2
1938	44	0.9	87	1.7	—	—	23	0.4	116	2.2	100	1.9	1,633	31.6	1,866	36.1	10	0.2	401	7.8	8	0.2
1939	25	0.5	69	1.3	—	—	25	0.5	76	1.5	29	0.6	1,651	31.7	1,881	36.1	40	0.8	389	7.5	4	0.1
1940	20	0.4	41	0.8	1	0.0	11	0.2	59	1.1	19	0.4	1,547	29.4	1,752	33.3	72	1.4	591	11.2	3	0.0
1941	18	0.3	32	0.6	1	0.0	14	0.3	91	1.7	65	1.2	1,532	28.2	1,723	31.7	18	0.3	537	9.9	1	0.0
1942	24	0.4	23	0.4	—	—	5	0.1	72	1.3	8	0.1	1,630	29.4	1,827	33.0	10	0.2	559	10.1	7	0.1
1943	21	0.4	11	0.2	—	—	9	0.2	101	1.9	89	1.7	1,588	29.5	1,802	33.5	27	0.5	579	10.8	3	0.0
1944	32	0.6	7	0.1	1	0.0	7	0.1	33	0.6	49	0.9	1,544	28.7	1,748	32.5	45	0.8	543	10.1	2	0.0
1945	46	0.8	9	0.2	—	—	3	0.1	36	0.7	10	0.2	1,591	29.3	1,758	32.3	20	0.4	527	9.7	2	0.0
1946	27	0.5	3	0.1	—	—	6	0.1	44	0.8	47	0.9	1,645	28.8	1,843	32.3	89	1.6	547	9.6	—	—
1947	23	0.4	6	0.1	—	—	5	0.1	63	1.0	5	0.1	1,483	24.4	1,643	27.1	29	0.5	502	8.3	3	0.0
1948	8	0.1	1	0.0	—	—	4	0.1	9	0.1	43	0.7	1,395	22.5	1,561	25.2	54	0.9	512	8.3	—	—
1949	11	0.2	4	0.1	—	—	1	0.0	22	0.3	3[illegible]	[illegible]5	1,254	19.7	1,400	22.0	216	3.4	455	7.2	—	—
1950	2	0.0	1	0.0	—	—	5	0.1	28	0.4	28	0.4	1,134	17.8	1,270	19.9	128	2.0	325	5.1	1	0.0
1951	6	0.1	—	—	—	—	1	0.0	21	0.3	11	0.2	1,049	16.0	1,154	17.6	67	1.0	299	4.6	1	0.0
1952	2	0.0	—	—	—	—	—	—	8	0.1	17	0.3	680	10.3	775	11.6	213	3.2	174	2.6	2	0.0
1953	2	0.0	1	0.0	—	—	—	—	11	0.2	16	0.2	5[illegible]	7.8	607	8.9	108	1.6	182	2.7	1	0.0
1954	3	0.0	3	0.0	—	—	—	—	17	0.2	17	0.2	471	6.7	530	7.5	89	1.3	139	2.0	2	0.0
1955	1	0.0	1	0.0	—	—	1	0.0	8	0.1	10	0.1	435	6.0	477	6.6	32	0.4	115	1.6	1	0.0
1956	6	0.1	3	0.0	—	—	—	—	6	0.1	26	0.3	426	5.7	466	6.2	22	0.3	114	1.5	4	0.1
1957	1	0.0	—	—	—	—	—	—	6	0.1	23	0.3	403	5.2	442	5.7	15	0.2	105	1.3	4	0.1
1958	—	—	—	—	—	—	—	—	1	0.0	18	0.2	357	4.5	395	5.0	37	0.5	84	1.1	8	0.1
1959	1	0.0	2	0.0	—	—	1	0.0	5	0.1	11	0.1	335	4.2	370	4.6	17	0.2	84	1.1	4	0.1
1960	2	0.0	1	0.0	—	—	—	—	1	0.0	17	0.2	364	4.7	390	5.0	4	0.1	79	1.0	7	0.1
1961	1	0.0	1	0.0	—	—	—	—	2	0.0	13	0.2	307	3.9	332	4.2	—	—	71	0.9	7	0.1
1962	2	0.0	1	0.0	—	—	—	—	2	0.0	8	0.1	307	3.9	331	4.2	2	0.0	94	1.2	3	0.0
1963	—	—	—	—	—	—	—	—	—	—	27	0.2	276	3.4	299	3.7	1	0.0	72	0.9	1	0.0
1964	—	—	—	—	—	—	—	—	2	0.0	11	0.1	288	3.6	315	3.9	1	0.0	66	0.8	3	0.0
1965	—	—	—	—	—	—	—	—	—	—	5	0.1	261	3.2	285	3.5	—	—	65	0.8	2	0.0
1966	1	0.0	—	—	—	—	—	—	—	—	7	0.1	284	3.4	301	3.6	—	—	63	0.8	—	—
1967	—	—	—	—	—	—	—	—	—	—	3	0.0	206	2.4	226	2.6	—	—	44	0.5	1	0.0
1968	—	—	1	0.0	—	—	—	—	—	—	—	—	203	2.3	262	3.0	2	0.0	29	0.3	—	—
1969	—	—	—	—	—	—	—	—	—	—	—	—	147	1.7	201	2.3	—	—	26	0.3	1	0.0
1970	—	—	2	0.0	—	—	—	—	—	—	1	0.0	134	1.5	180	2.0	—	—	17	0.2	2	0.0
1971	—	—	4	0.0	—	—	—	—	—	—	—	—	122	1.4	173	1.9	—	—	18	0.2	—	—
1972	—	—	1	0.0	—	—	—	—	—	—	—	—	111	1.2	157	1.7	1	0.0	12	0.1	—	—
1973	—	—	—	—	—	—	—	—	1	0.0	2	0.0	101	1.1	138	1.5	3	0.0	12	0.1	—	—
1974	—	—	1	0.0	—	—	—	—	2	0.0	—	—	109	1.2	142	1.6	3	0.0	11	0.1	—	—
1975	—	—	—	—	—	—	—	—	1	0.0	1	0.0	81	0.9	110	1.2	5	0.1	10	0.1	1	0.0
1976	—	—	—	—	—	—	—	—	—	—	—	—	80	0.9	102	1.1	6	0.1	11	0.1	—	—
1977	—	—	1	0.0	—	—	—	—	—	—	—	—	67	0.7	97	1.1	6	0.1	3	0.0	—	—

[1]From 1901 through 1920, syphilis includes all other venereal diseases, beginning with 1968 excludes aortic aneurysms not specified as syphilitic.
[2]Effective January 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, deaths and rates prior to 1975 are not directly comparable to the figures in 1975 and later years.

TABLE 4.8
NUMBER OF DEATHS AND DEATH RATES BY SPECIFIED CAUSES
MICHIGAN RESIDENTS, 1900-1977
(Rates per 100,000 Population)

Year	Heart Disease[1]		Cancer (all forms)[2]		Vascular Lesions Affecting Central Nervous System[3]		Accidents (all forms)[4]		Motor Vehicle Accidents[5]		Diabetes		Pneumonia[6]		Immaturity[7]		General Arterio-sclerosis[8]	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1900	2,836	117.1	1,460	60.3	2,136	88.2	1,740	71.9			224	9.3	2,388	98.6	620	25.6		
1901	3,040	123.6	1,484	60.3	2,147	87.3	1,901	77.3			264	10.7	2,901	117.9	524	21.3		
1902	3,302	132.1	1,483	59.3	2,097	83.9	1,796	71.9			289	11.6	2,637	105.5	608	24.3		
1903	3,702	145.9	1,694	66.8	2,321	91.5	2,017	79.5			265	10.4	2,607	102.7	542	21.4		
1904	3,981	154.5	1,728	67.1	2,431	94.3	2,035	79.0			298	11.6	2,646	102.7	632	24.5		
1905	3,715	142.0	1,693	64.7	2,405	91.9	2,034	77.8			267	10.2	2,417	92.4	751	28.7		
1906	3,933	148.2	1,736	65.4	2,554	96.2	2,126	80.1			311	11.7	2,621	98.7	830	31.3		
1907	4,269	158.5	1,747	64.9	2,690	99.9	2,209	82.0			352	13.1	3,018	112.0	855	31.7		
1908	4,202	153.8	1,921	70.3	2,630	96.3	2,036	74.5			359	13.1	2,313	84.7	975	35.7		
1909	4,354	157.1	1,948	70.3	2,739	98.8	1,903	68.7			374	13.5	2,265	81.7	1,152	41.6		
1910	4,581	163.0	2,105	74.9	3,091	110.0	2,158	76.8	49	1.7	398	14.2	2,785	99.1	2,050	72.9		
1911	4,539	160.2	2,142	74.0	2,916	100.7	2,121	73.2	44	1.5	373	12.9	2,763	95.4	2,223	76.8		
1912	5,324	178.5	2,291	76.8	2,707	90.8	2,005	67.2	75	2.5	448	15.0	2,796	93.8	2,340	78.5		
1913	4,908	160.0	2,388	77.8	2,834	92.4	2,333	76.1	132	4.3	483	15.7	3,082	100.5	2,480	80.8		
1914	5,124	162.5	2,414	76.6	2,993	94.9	2,108	66.8	120	3.8	503	16.0	2,909	92.2	2,391	75.8		
1915	5,538	171.0	2,567	79.2	3,384	104.5	2,219	68.5	190	5.9	498	15.4	3,229	99.7	2,207	68.1		
1916	5,819	175.0	2,710	81.5	3,559	107.0	2,853	85.8	257	7.7	500	15.0	3,698	111.2	2,498	75.1		
1917	6,103	178.9	2,765	81.1	3,703	108.6	2,925	85.8	335	9.8	569	16.7	4,455	130.6	2,369	69.5		
1918	6,091	174.2	2,931	83.8	3,493	99.9	2,599	74.3	279	8.0	591	16.9	7,238	207.0	2,362	67.5		
1919	5,651	157.7	2,990	83.5	3,483	97.2	2,612	72.9	328	9.2	559	15.6	4,081	113.9	2,183	60.9		
1920	6,732	183.5	3,158	86.1	3,876	105.7	2,646	72.1	397	10.8	577	15.7	5,794	157.9	2,512	68.5		
1921	6,176	163.1	3,375	89.1	3,931	103.8	2,476	65.4	403	10.6	586	15.5	2,849	75.3	2,481	65.5		
1922	6,897	176.7	3,481	89.2	4,041	103.5	2,475	63.4	529	13.6	650	16.7	3,728	95.5	1,793	45.9		
1923	7,266	180.7	3,545	88.2	4,420	109.9	2,826	70.3	677	16.8	635	15.8	4,719	117.4	1,911	47.5		
1924	6,985	168.8	3,824	92.4	4,241	102.5	3,090	74.7	1,001	24.2	661	16.0	3,332	80.5	1,970	47.6		
1925	7,540	177.2	3,858	90.7	4,623	108.6	3,278	77.0	1,103	25.9	746	17.5	3,294	77.4	1,987	46.7		
1926	8,281	189.4	4,087	93.5	4,663	106.6	3,557	81.3	1,221	27.9	743	17.0	4,440	101.5	1,986	45.4		
1927	8,780	195.5	4,264	95.0	4,378	97.5	3,634	80.9	1,389	30.9	819	18.2	3,543	78.9	1,911	42.6		
1928	9,786	212.4	4,381	95.1	4,718	102.4	3,704	80.4	1,429	31.0	905	19.6	4,518	98.1	1,846	40.1		
1929	10,185	215.6	4,571	96.7	4,694	99.3	3,913	82.8	1,552	32.8	935	19.8	4,216	89.2	1,853	39.2		
1930	9,947	205.4	4,572	94.4	4,533	93.6	3,805	78.6	1,572	32.5	880	18.2	3,321	68.6	1,805	37.3	1,047	21.6
1931	10,206	209.0	4,763	97.5	4,388	89.8	3,630	74.3	1,516	31.0	950	19.5	2,883	59.0	1,473	30.2	1,005	20.6
1932	11,162	226.6	4,935	100.2	4,518	91.7	3,179	64.5	1,229	25.0	1,121	22.8	3,238	65.7	1,372	27.9	948	19.2
1933	11,509	231.7	5,055	101.8	4,318	86.9	3,304	66.5	1,278	25.7	1,103	22.2	2,756	55.5	1,364	27.5	966	19.5
1934	11,824	236.1	5,370	107.2	4,485	89.6	3,774	75.4	1,511	30.2	1,100	22.0	3,466	69.2	1,419	28.3	914	18.3
1935	12,456	246.7	5,399	106.9	4,420	87.5	3,771	74.7	1,676	33.2	1,228	24.3	3,801	75.3	1,389	27.5	897	17.8
1936	13,374	262.7	5,752	113.0	4,705	92.4	5,246	103.1	1,924	37.8	1,266	24.9	4,096	80.5	1,395	27.4	997	19.6
1937	13,233	257.8	5,732	111.7	4,378	85.3	4,580	89.2	2,187	42.6	1,255	24.5	4,098	79.8	1,415	27.6	1,168	22.8
1938	13,887	268.4	6,059	117.1	4,543	87.8	3,608	69.7	1,490	28.8	1,283	24.8	2,869	55.5	1,484	28.7	869	16.8
1939	14,898	285.7	6,296	120.7	4,415	84.7	3,761	72.1	1,553	29.8	1,360	26.1	2,803	53.8	1,396	26.8	918	17.6
1940	15,480	294.5	6,513	123.9	4,690	89.2	3,961	75.4	1,743	33.2	1,408	26.8	2,478	47.1	1,298	24.7	941	17.9
1941	15,761	289.8	6,551	120.5	4,698	86.4	4,450	81.8	2,156	39.6	1,382	25.4	2,235	41.1	1,353	24.9	906	16.7
1942	16,016	289.2	6,646	120.0	4,841	87.4	3,685	66.5	1,368	24.7	1,448	26.1	2,349	42.2	1,575	28.4	1,015	18.3
1943	17,816	331.3	7,127	132.5	5,311	98.8	3,480	64.7	1,025	19.1	1,535	28.5	2,931	54.5	1,488	27.7	1,092	20.3
1944	17,004	316.2	7,277	135.3	4,954	92.1	3,350	62.3	1,103	20.5	1,554	28.9	2,369	44.1	1,412	26.3	980	18.2
1945	17,421	320.5	7,486	137.7	5,295	97.4	3,432	63.1	1,199	22.1	1,561	28.7	1,932	35.5	1,339	24.6	970	17.8
1946	17,691	309.9	7,845	137.4	5,224	91.5	3,776	66.1	1,506	26.4	1,530	26.8	1,891	33.1	1,735	30.4	933	16.3
1947	18,412	303.4	8,188	134.9	5,426	89.4	3,848	63.4	1,499	24.7	1,618	26.7	2,089	34.4	1,953	32.2	1,031	17.0
1948	18,726	302.3	8,336	134.6	5,272	85.1	4,017	64.8	1,545	24.9	1,771	28.6	1,853	29.9	1,820	29.4	1,085	17.5
1949	19,137	301.3	8,697	136.9	5,438	85.6	3,838	60.4	1,493	23.5	1,884	29.7	1,885	29.7	1,795	28.3	1,135	17.9
1950	20,521	322.1	8,685	136.3	6,376	100.1	3,783	59.4	1,680	26.4	1,438	22.6	1,358	21.3	1,096	17.2	1,296	20.3
1951	21,118	322.6	9,187	140.4	6,579	100.5	3,916	59.8	1,806	27.6	1,374	21.0	1,619	24.7	1,232	18.8	1,312	20.0
1952	21,247	316.8	9,256	138.0	6,521	97.2	3,901	58.2	1,815	27.1	1,339	20.0	1,571	23.4	1,256	18.7	1,2[illegible]	19.3
1953	22,425	327.3	9,904	144.5	7,045	102.8	4,375	63.8	2,051	29.9	1,419	20.7	1,538	22.4	1,114	16.3	1,270	18.5
1954	22,362	318.4	10,105	143.9	6,964	99.1	3,948	56.2	1,916	27.3	1,469	20.9	1,380	19.6	1,298	18.5	1,170	16.7
1955	23,440	323.9	10,297	142.3	7,362	101.7	4,213	58.2	2,129	29.4	1,415	19.6	1,538	21.3	1,272	17.6	1,237	17.1
1956	24,661	328.1	10,489	139.6	7,114	94.7	3,925	52.2	1,826	24.3	1,443	19.2	1,723	22.9	1,244	16.6	1,251	16.6
1957	25,369	325.1	10,810	138.5	7,632	97.8	3,643	46.7	1,680	21.5	1,510	19.4	2,045	26.2	1,322	16.9	1,248	16.0
1958	25,215	320.6	10,946	139.2	7,547	95.9	3,306	42.0	1,466	18.6	1,595	20.3	2,076	26.4	1,208	15.4	1,300	16.5
1959	25,323	318.1	11,113	139.6	7,700	96.7	3,666	46.1	1,587	19.9	1,715	21.5	1,810	22.7	1,201	15.1	1,403	17.6
1960	25,728	328.9	11,331	144.8	7,682	98.2	3,688	47.1	1,710	21.9	1,784	22.8	2,002	25.6	1,148	14.7	1,352	17.3
1961	25,519	322.9	11,476	145.2	7,745	98.0	3,692	46.7	1,656	21.0	1,778	22.5	1,692	21.4	1,003	12.7	1,448	18.3
1962	27,226	342.9	11,752	148.0	7,783	98.0	3,758	47.3	1,668	21.0	1,908	24.0	1,824	23.0	907	11.4	1,477	18.6
1963	27,483	342.3	12,078	150.4	8,168	101.7	4,033	50.2	2,005	25.0	2,049	25.5	1,995	24.8	816	10.2	1,652	20.6
1964	27,496	339.5	12,087	149.2	7,940	98.0	4,416	54.5	2,286	28.2	2,055	25.4	1,714	21.2	807	10.0	1,559	19.2
1965	28,134	343.1	12,419	151.5	7,769	94.8	4,494	54.8	2,271	27.7	2,153	26.3	1,987	24.2	768	9.4	1,726	21.1
1966	28,277	340.1	12,506	150.4	7,732	93.0	4,737	57.0	2,407	29.0	2,243	27.0	2,026	24.4	819	9.9	1,745	21.0
1967	28,757	333.8	13,030	151.2	7,846	91.1	4,519	52.4	2,265	26.3	2,182	25.3	1,973	22.9	718	8.3	1,730	20.1
1968	29,680	342.1	13,292	153.2	7,913	91.2	4,603	53.1	2,466	28.4	2,298	26.5	2,341	27.0	487	5.6	1,262	14.5
1969	29,396	336.6	13,328	152.6	7,706	88.2	4,766	54.6	2,529	29.0	2,188	25.1	2,229	25.5	459	5.3	1,289	14.8
1970	29,204	329.1	13,551	152.7	7,691	86.7	4,428	49.9	2,309	26.0	2,180	24.6	2,004	22.6	436	4.9	1,174	13.2
1971	30,095	334.5	13,594	151.1	7,826	87.0	4,426	49.2	2,274	25.3	2,103	23.4	1,981	22.0	386	4.3	1,187	13.2
1972	30,865	342.4	14,045	155.8	7,999	88.7	4,566	50.7	2,450	27.2	2,222	24.7	1,924	21.3	316	3.5	1,153	12.8
1973	29,944	330.5	14,220	156.9	7,987	88.1	4,630	51.1	2,389	26.4	2,074	22.9	2,090	23.1	263	2.9	1,142	12.6
1974	29,220	321.2	14,241	156.5	7,645	84.0	4,211	46.3	1,929	21.2	1,940	21.3	1,958	21.6	240	2.6	1,187	13.0
1975	28,298	309.0	14,445	157.7	7,262	79.3	4,002	43.7	1,841	20.1	1,819	19.9	1,690	18.5	187	2.0	1,119	12.2
1976	29,233	321.1	14,880	163.4	7,354	80.8	3,912	43.0	1,993	21.9	1,719	18.9	1,812	19.9	186	2.0	1,207	13.3
1977	28,895	316.5	15,125	165.7	6,818	74.7	3,945	43.2	1,960	21.5	1,615	17.7	1,648	18.1	155	1.7	1,164	12.8

[1]Heart disease includes all forms.
[2]Cancer includes leukemias, aleukemias, and Hodgkin's disease beginning with 1921.
[3]Vascular Lesions Affecting Central Nervous System category is now called Cerebrovascular disease.
[4]Accidents exclude injuries undetermined whether accidentally or purposely inflicted since 1968.
[5]Motor vehicle accidents do not include collision with heavier vehicles from 1910 through 1922. Motorcycle accidents are included beginning with 1923.
[6]Deaths due to Pneumonia now include Pneumonia of the Newborn since 1968.
[7]Deaths related to Immaturity include Congenital Debility from 1910 through 1921.
[8]General Arteriosclerosis is called Arteriosclerosis since 1968.

TABLE 4.9

SELECTED VITAL STATISTICS BY COUNTY
MICHIGAN RESIDENTS, 1977

Area	Population Estimate	Live Births	Low Weight Live Births	Deaths	Infant Deaths	Neonatal Deaths	Perinatal Deaths	Fetal Deaths	Marriages[1]	Divorces[1]
STATE	9,139,000	138,416	9,923	74,144	1,945	1,367	2,456	1,288	86,088	43,036
Alcona	8,900	105	7	114	1	1	2	1	69	31
Alger	9,800	164	12	107	1	1	1	-	92	-
Allegan	73,800	1,213	68	582	11	6	16	11	764	363
Alpena	33,600	472	26	269	7	5	9	5	348	141
Antrim	15,800	208	11	193	5	2	4	2	167	51
Arenac	13,600	221	8	133	2	2	3	1	105	46
Baraga	8,400	145	14	97	2	1	2	1	86	29
Barry	42,200	666	38	354	4	4	9	6	401	216
Bay	120,200	1,942	89	954	22	14	28	15	1,200	459
Benzie	10,500	147	10	123	1	-	1	1	119	63
Berrien	159,200	2,865	219	1,523	42	24	48	29	1,793	896
Branch	37,600	610	31	384	15	9	12	4	477	220
Calhoun	139,800	2,212	147	1,283	37	24	44	26	1,483	880
Cass	44,800	766	37	406	4	2	12	10	458	252
Charlevoix	19,500	309	17	200	2	1	1	1	210	72
Cheboygan	20,300	312	15	210	2	1	2	2	178	77
Chippewa	36,800	594	23	312	4	3	7	5	357	173
Clare	22,800	298	22	238	3	2	12	10	237	118
Clinton	54,500	818	44	328	9	8	15	7	425	184
Crawford	9,000	141	11	86	3	2	2	-	104	42
Delta	40,100	604	23	389	9	7	11	5	401	159
Dickinson	25,400	375	15	327	4	2	2	1	294	116
Eaton	79,600	1,144	51	490	13	11	18	11	732	382
Emmet	21,300	326	18	222	5	4	6	4	259	103
Genesee	444,900	7,311	593	3,274	117	75	127	63	4,731	2,634
Gladwin	17,200	264	16	202	7	6	10	5	170	-
Gogebic	20,300	231	20	283	9	9	10	1	225	60
Grand Traverse	46,600	804	45	395	7	5	9	5	572	273
Gratiot	39,700	675	35	333	10	9	11	4	433	161
Hillsdale	40,600	632	41	345	6	4	8	5	394	232
Houghton	37,000	486	25	425	8	5	9	4	264	90
Huron	36,600	583	40	410	9	7	18	11	309	82
Ingham	272,000	4,357	288	1,634	63	43	62	25	3,010	1,786
Ionia	49,000	799	40	417	9	5	8	5	486	230
Iosco	30,600	578	31	282	6	5	8	3	282	81
Iron	14,500	191	7	187	1	1	1	-	152	36
Isabella	51,700	759	37	330	9	4	12	9	466	179
Jackson	149,900	2,210	152	1,295	29	17	34	18	1,458	776
Kalamazoo	206,200	2,966	193	1,338	44	34	45	18	2,182	1,156
Kalkaska	11,500	165	8	92	-	-	-	-	133	58
Kent	429,500	7,263	464	3,365	93	58	99	48	4,772	2,308
Keweenaw	2,600	22	-	31	-	-	-	-	23	8
Lake	7,100	114	7	115	1	1	2	1	69	23
Lapeer	64,500	1,067	63	462	12	7	14	7	596	287
Leelanau	13,100	136	10	127	-	-	1	1	134	41
Lenawee	85,400	1,436	92	701	21	11	22	14	832	453
Livingston	86,200	1,244	87	508	19	14	24	12	720	355
Luce	7,200	112	8	88	2	2	3	1	84	32
Mackinac	10,800	163	11	116	3	3	7	4	111	34
Macomb	686,000	9,040	574	4,119	119	82	144	72	6,367	3,152
Manistee	21,800	290	16	272	4	3	8	5	192	70
Marquette	73,200	1,359	66	527	17	14	21	8	742	321
Mason	25,200	359	31	247	8	6	9	3	247	129
Mecosta	34,200	468	24	214	5	5	7	2	305	107
Menominee	26,100	400	29	300	4	3	3	-	330	79
Midland	69,600	1,082	69	418	16	12	18	7	689	311
Missaukee	9,400	156	6	78	1	-	-	-	88	27
Monroe	129,100	2,072	128	907	27	15	29	17	1,251	481
Montcalm	46,000	792	50	432	12	9	15	8	520	244
Montmorency	7,300	115	6	77	1	-	3	3	59	26
Muskegon	158,100	2,515	190	1,315	36	22	41	21	1,585	850
Newaygo	32,200	552	36	313	8	6	8	4	322	131
Oakland	984,200	13,084	905	6,837	171	126	238	127	9,239	4,989
Oceana	21,000	337	16	230	3	1	3	2	198	84
Ogemaw	14,900	215	16	191	3	1	2	1	169	56
Ontonagon	11,100	121	7	111	2	2	2	1	72	27
Osceola	18,500	288	20	180	4	4	8	5	188	-
Oscoda	6,400	83	1	72	2	2	3	1	73	16
Otsego	14,400	257	12	88	4	4	1	-	139	71
Ottawa	146,100	2,499	121	935	24	18	32	16	1,355	549
Presque Isle	14,000	220	6	143	1	1	1	1	103	47
Roscommon	15,700	208	12	190	3	3	4	2	160	58
Saginaw	226,700	3,700	262	1,705	45	28	51	26	2,106	1,212
St. Clair	131,600	2,011	139	1,182	26	18	40	25	1,276	640
St. Joseph	50,900	902	71	457	10	6	21	15	591	246
Sanilac	38,800	604	28	399	6	3	8	6	361	113
Schoolcraft	8,900	152	5	105	1	1	5	4	102	28
Shiawassee	69,500	1,138	64	508	15	13	20	10	701	353
Tuscola	54,100	864	54	460	4	3	11	8	517	169
Van Buren	61,800	1,047	65	621	14	9	15	11	809	294
Washtenaw	250,200	3,562	246	1,219	36	27	50	31	2,621	1,584
Wayne	2,417,700	36,293	3,352	23,173	608	445	806	420	19,132	10,056
Wexford	22,400	384	25	210	2	1	5	4	312	88
County Not Stated		20	2	30	13	13	13	-	-	-

[1]By County of Occurrence rather than county of residence

TABLE 4.10

SELECTED VITAL STATISTICS RATES BY COUNTY
MICHIGAN RESIDENTS, 1977

Area	Live Births	Low Weight Live Births[1]	Deaths	Infant Deaths	Neonatal Deaths	Perinatal Deaths	Fetal Deaths[1]	Marriages[2]	Divorces[2]
STATE	15.2	71.7	8.1	14.1	9.4	17.6	9.1	18.4	9.4
Alcona	11.8	66.7	12.8	9.5	9.5	18.9	9.4	15.5	7.0
Alger	16.7	73.2	10.9	6.1	6.1	6.1	-	18.8	-
Allegan	16.4	56.1	7.9	9.1	4.9	13.1	4.0	20.1	9.8
Alpena	14.0	55.1	8.0	14.8	10.6	18.9	10.3	20.7	8.4
Antrim	13.2	52.9	12.2	24.0	9.6	14.0	4.3	21.1	9.3
Arenac	16.1	76.2	9.8	9.0	9.0	11.3	4.5	15.4	6.5
Baraga	17.1	98.6	11.5	11.6	5.8	11.7	5.8	20.5	6.8
Barry	15.8	57.1	8.4	6.0	6.0	11.4	8.9	19.0	10.2
Bay	16.2	65.8	7.9	11.1	7.2	14.1	7.7	20.0	7.6
Benzie	14.0	68.0	11.7	6.8	-	6.8	6.8	21.7	12.0
Berrien	16.9	76.4	9.0	14.7	8.4	16.8	10.0	21.4	10.6
Branch	16.2	50.8	10.2	24.6	14.8	19.5	4.9	20.6	11.7
Calhoun	15.8	66.5	9.2	14.7	10.8	19.7	11.6	21.7	11.6
Cass	17.1	68.1	9.1	5.2	2.6	15.5	12.9	20.4	11.1
Charlevoix	15.8	55.0	10.1	6.5	3.2	3.2	3.2	21.3	8.4
Cheboygan	15.4	68.1	10.1	6.4	3.2	6.4	6.4	15.5	7.0
Chippewa	16.1	78.7	8.5	6.7	3.1	11.7	8.3	19.4	9.4
Clare	13.1	71.8	10.4	10.1	6.7	19.0	12.3	20.8	10.4
Clinton	15.0	53.8	6.0	11.0	9.8	18.2	8.5	19.6	6.6
Crawford	19.7	78.0	9.6	21.1	14.2	19.2	-	21.3	9.1
Delta	15.1	78.1	9.7	16.9	11.6	18.1	8.2	20.6	9.4
Dickinson	14.8	60.0	13.9	10.7	5.3	21.3	15.9	21.3	9.6
Eaton	16.4	64.6	6.2	11.4	9.0	17.2	8.3	18.3	9.6
Emmet	15.3	55.2	10.4	11.3	12.1	18.4	12.1	19.3	9.1
Genesee	16.4	81.1	9.6	16.0	10.1	17.1	8.3	21.1	11.8
Gladwin	15.1	60.6	11.7	25.5	22.1	17.2	10.6	19.8	-
Gogebic	11.4	86.6	11.9	18.0	18.0	24.3	9.1	22.2	7.9
Grand Traverse	17.1	56.0	8.5	8.1	6.2	11.1	6.2	24.5	11.7
Gratiot	17.0	51.9	8.4	14.8	11.1	16.2	5.9	21.5	9.1
Hillsdale	15.6	64.9	8.5	9.5	6.1	12.8	7.6	18.4	11.4
Houghton	11.1	51.4	11.5	18.4	10.3	15.4	8.2	19.4	7.9
Huron	15.9	68.8	11.2	13.4	12.0	30.1	16.1	16.9	7.5
Ingham	16.0	66.1	6.0	14.5	9.9	14.1	7.6	20.1	9.1
Ionia	16.1	50.1	8.5	11.1	5.1	10.0	6.1	19.8	9.4
Iosco	18.9	51.6	9.2	10.4	8.3	11.8	5.2	18.4	9.1
Iron	11.2	39.8	12.9	5.2	5.2	5.2	-	21.0	7.0
Isabella	14.7	48.7	6.4	11.9	5.3	13.8	11.	19.3	6.9
Jackson	14.7	68.8	8.6	13.1	7.7	19.1	8.1	19.3	10.4
Kalamazoo	16.4	65.1	6.5	14.8	11.5	19.1	6.0	21.2	11.2
Kalkaska	14.1	48.5	8.0	-	-	-	-	21.1	10.1
Kent	16.9	61.9	7.8	12.8	8.0	17.5	9.6	21.2	10.1
Keweenaw	8.5	-	11.9	-	-	-	-	11.5	8.2
Lake	16.1	61.4	16.2	6.8	6.8	17.4	8.	19.6	9.5
Lapeer	16.5	59.0	7.2	11.2	6.6	14.0	6.1	18.1	6.9
Leelanau	10.4	71.5	9.7	-	-	9.1	9.1	20.3	9.1
Lenawee	15.8	66.2	8.2	14.6	7.	15.2	6.7	19.5	10.6
Livingston	18.4	69.4	5.9	15.1	11.1	19.1	8.6	19.7	8.2
Luce	15.6	71.4	12.2	17.9	17.9	26.5	8.8	21.3	8.9
Mackinac	15.1	67.5	10.7	18.4	18.4	41.9	23.0	20.8	9.7
Macomb	13.2	63.5	6.0	11.2	9.1	11.8	2.9	18.5	9.2
Manistee	13.7	55.2	12.5	11.8	10.1	21.1	10.9	21.6	9.2
Marquette	18.6	68.6	7.2	13.5	10.1	11.4	5.8	20.1	8.6
Mason	14.2	80.4	9.8	22.1	19.7	24.8	8.1	19.8	10.1
Mecosta	13.7	51.1	6.1	10.7	10.7	14.8	4.1	17.8	9.1
Menominee	15.3	72.5	11.5	10.0	7.5	7.5	-	21.7	9.1
Midland	15.5	63.8	6.0	14.8	11.1	18.5	9.4	19.8	9.4
Missaukee	16.6	38.3	8.3	6.4	-	-	-	18.7	7.1
Monroe	16.0	61.8	7.0	11.0	7.2	11.4	8.1	19.4	7.3
Montcalm	17.2	63.1	9.4	15.2	11.4	15.8	10.0	22.6	10.6
Montmorency	15.8	52.2	10.5	8.7	-	25.4	25.4	16.	7.1
Muskegon	15.9	75.5	8.1	14.1	8.1	18.2	8.1	20.1	10.8
Newaygo	17.1	65.2	9.7	14.5	10.9	19.4	7.2	20.0	8.1
Oakland	13.3	69.2	6.7	11.1	9.6	18.0	8.0	19.8	10.1
Oceana	16.0	47.5	11.0	3.0	3.0	6.8	3.9	15.9	8.0
Ogemaw	14.4	74.4	12.8	14.0	9.3	9.3	4.6	22.1	7.3
Ontonagon	10.9	57.9	10.0	16.5	16.5	16.4	8.2	13.0	4.9
Osceola	15.6	69.4	9.7	11.9	11.9	27.1	17.1	20.0	-
Oscoda	13.0	12.0	11.3	24.1	24.1	37.7	11.9	22.8	5.0
Otsego	17.8	46.7	6.1	15.6	15.6	3.9	-	19.1	9.9
Ottawa	17.1	68.4	6.4	9.6	7.2	12.7	6.4	18.5	7.3
Presque Isle	15.7	27.3	10.2	6.5	6.5	6.5	6.5	16.7	9.
Roscommon	13.2	57.7	12.1	16.4	16.4	19.0	8.5	20.6	7.4
Saginaw	16.3	70.8	7.5	12.2	7.6	11.7	7.0	19.6	10.7
St. Clair	15.3	69.0	9.0	12.9	8.9	19.6	12.1	19.6	9.
St. Joseph	17.7	78.7	9.0	11.1	6.7	22.9	16.4	21.2	9.2
Sanilac	15.6	46.4	10.1	9.9	5.0	13.1	6.8	18.6	5.8
Schoolcraft	17.1	72.9	11.8	6.6	6.6	13.1	25.6	22.9	8.1
Shiawassee	16.4	56.2	7.3	11.2	11.2	17.4	8.7	20.2	10.1
Tuscola	16.0	62.5	8.5	6.6	3.3	12.6	9.2	19.1	9.2
Van Buren	16.9	62.1	10.0	11.4	8.6	14.2	10.6	19.7	9.5
Washtenaw	14.2	69.1	4.9	10.1	7.6	11.9	8.9	21.0	12.5
Wayne	15.0	92.4	9.6	16.8	12.3	22.0	11.4	15.8	8.1
Wexford	17.1	65.1	9.4	5.2	2.6	12.9	10.1	21.9	7.9

[1]By county of occurrence rather than county of residence
[2]Rate of persons per population rather than events per population
[3]Ratio per 1,000 live births

TABLE 4.11 - LIVE BIRTHS BY AGE OF MOTHER
BY COUNTY MICHIGAN RESIDENTS, 1977

COUNTY	AGE OF MOTHER														
	Total	Under 15	13	14	15	16	17	18	19	15-19	20-24	25-29	30-34	35-39	Over 40	Age Not Stated
STATE	158,416	426	1,057	2,381	4,491	6,628	8,020	22,583	29,740	43,146	37,291	14,178	522	26	
Alcona	105	-	-	2	6	6	11	25	47	23	8	2	-	-	
Alger	164	-	-	3	7	8	10	30	65	46	16	7	1	-	
Allegan	1,213	2	8	17	51	54	68	198	480	374	117	37	5	-	
Alpena	472	1	2	7	16	21	4	70	174	162	64	21	4	1	
Antrim	208	-	1	6	13	10	9	39	75	63	24	7	1	1	
Arenac	221	1	-	4	10	11	21	45	87	62	20	4	2	-	
Baraga	145	-	1	2	3	8	11	25	47	48	20	5	1	-	
Barry	666	-	3	15	28	38	41	130	244	203	73	11	5	-	
Bay	1,942	3	11	36	54	71	103	273	750	620	240	46	10	-	
Benzie	143	1	-	1	5	12	8	26	51	46	21	10	2	-	
Berrien	2,865	24	34	84	132	154	184	508	1,002	831	306	80	14	5	
Branch	610	1	4	8	20	32	44	114	243	168	55	20	9	-	
Calhoun	2,212	5	23	46	89	100	147	435	885	624	212	47	9	-	
Cass	766	2	6	20	27	37	51	141	283	241	95	21	3	-	
Charlevoix	409	1	1	3	11	13	23	47	121	86	46	6	2	-	
Cheboygan	312	-	2	4	10	18	21	61	105	87	40	16	3	-	
Chippewa	594	1	4	10	9	15	25	63	158	168	61	21	2	-	
Clare	248	-	5	11	8	16	23	63	135	63	27	7	3	-	
Clinton	818	3	3	9	18	26	32	91	200	277	114	29	2	-	
Crawford	141	-	-	3	3	9	9	24	50	40	18	8	1	-	
Delta	604	1	3	6	28	33	35	106	237	176	65	16	3	-	
Dickinson	375	-	1	5	9	23	20	60	148	117	42	6	2	-	
Eaton	1,146	3	4	14	26	38	42	123	287	408	144	26	8	-	
Emmet	326	-	1	2	5	14	16	38	111	121	42	13	2	-	
Genesee	7,311	19	62	182	321	402	514	1,478	2,842	2,068	727	184	44	2	
Gladwin	264	-	-	7	12	7	21	47	115	69	25	7	1	-	
Gogebic	231	1	-	2	10	9	13	34	71	73	34	15	1	-	
Grand Traverse	806	2	1	10	17	14	34	76	169	289	261	100	31	3	
Gratiot	675	-	6	16	22	25	36	105	229	265	204	75	14	2	
Hillsdale	632	-	5	11	11	24	41	92	184	255	164	83	15	-	
Houghton	486	-	2	7	11	22	26	68	166	155	87	21	9	-	
Huron	583	-	2	6	19	17	26	70	212	179	77	22	3	-	
Ingham	4,357	14	26	66	124	186	226	630	1,586	1,445	564	143	21	1	
Ionia	799	1	2	20	24	29	41	116	237	218	86	18	3	-	
Iosco	578	-	2	4	12	11	33	104	266	180	86	13	3	-	
Iron	191	-	1	4	6	15	19	45	72	45	20	7	1	1	
Isabella	759	1	6	8	17	16	43	110	181	232	65	16	4	-	
Jackson	2,210	10	18	50	84	109	146	407	808	668	248	57	12	-	
Kalamazoo	2,966	5	14	44	79	123	161	423	1,012	1,029	381	92	19	-	
Kalkaska	165	1	1	-	9	21	11	43	81	42	8	2	1	-	
Kent	7,263	24	60	121	229	312	352	1,074	1,633	2,403	826	200	33	-	
Keweenaw	22	-	1	-	-	1	2	4	8	6	1	2	1	-	
Lake	114	1	3	2	5	12	6	28	63	24	13	4	1	-	
Lapeer	1,067	2	6	14	11	44	68	165	413	323	113	27	4	-	
Leelanau	136	-	-	-	2	2	7	11	48	44	27	6	-	-	
Lenawee	1,434	1	7	23	44	71	102	247	525	444	170	42	5	-	
Livingston	1,266	1	3	12	26	39	65	145	346	430	209	53	10	-	
Luce	112	-	1	5	5	6	8	25	44	40	11	2	-	-	
Mackinac	161	-	3	8	8	4	4	27	56	44	23	6	2	-	
Macomb	9,040	7	26	78	179	266	364	913	1,843	1,308	1,373	330	63	1	
Manistee	290	-	2	3	12	18	14	44	100	88	36	4	3	-	
Marquette	1,358	1	4	26	36	54	88	208	581	396	134	26	10	1	
Mason	358	-	2	1	11	21	19	54	145	116	33	5	3	-	
Mecosta	468	2	2	9	17	26	11	85	193	115	38	11	3	-	
Menominee	400	-	-	5	17	17	29	68	150	124	39	16	3	-	
Midland	1,082	1	3	20	26	44	46	139	361	374	162	42	3	-	
Missaukee	156	-	1	3	9	4	9	26	74	35	17	4	-	-	
Monroe	2,072	2	16	40	64	105	125	350	792	633	223	64	18	-	
Montcalm	792	-	4	17	12	30	52	155	323	212	71	26	5	-	
Montmorency	115	-	-	2	3	11	5	22	46	27	12	2	1	-	
Muskegon	2,315	12	23	67	98	142	132	482	1,000	695	251	50	15	-	
Newaygo	552	1	5	6	20	27	42	98	212	169	50	15	6	1	
Oakland	13,084	29	58	146	301	394	571	1,474	3,918	4,266	2,800	512	84	1	
Oceana	337	-	3	5	18	11	14	51	120	103	45	17	1	-	
Ogemaw	215	1	2	6	10	11	17	47	82	57	18	8	3	-	
Ontonagon	121	-	1	-	1	6	3	11	17	47	34	14	8	1	-
Osceola	288	-	1	6	14	24	28	73	103	61	34	11	1	-	
Oscoda	83	-	1	-	5	9	5	21	18	15	6	3	-	-	
Otsego	257	-	-	3	5	13	11	32	98	89	28	7	2	-	
Ottawa	2,499	2	12	24	55	55	105	251	876	929	363	68	10	-	
Presque Isle	220	1	1	3	8	9	16	37	85	70	21	5	1	-	
Roscommon	208	-	1	6	14	12	18	51	74	53	26	7	4	-	
Saginaw	3,700	12	32	82	150	183	241	660	1,423	1,156	442	81	26	-	
St. Clair	2,015	5	11	30	62	105	135	343	766	601	221	68	10	1	
St. Joseph	902	3	5	18	33	47	69	172	185	247	77	21	7	-	
Sanilac	604	-	4	5	21	26	33	89	251	171	66	21	6	-	
Schoolcraft	152	-	2	3	12	9	14	40	52	46	11	3	-	-	
Shiawassee	1,138	-	4	13	28	56	61	174	444	331	143	39	6	1	
Tuscola	866	-	10	17	24	46	52	152	315	281	88	25	5	-	
Van Buren	1,047	1	9	14	39	47	75	184	420	314	101	25	5	-	
Washtenaw	3,362	7	11	36	61	114	165	392	1,041	1,277	661	120	13	1	
Wayne	36,293	187	444	905	1,319	2,025	2,528	7,021	12,961	10,471	4,140	1,098	227	7	
Wexford	384	-	5	5	17	25	26	78	129	115	48	10	4	-	
County Not Stated	20	-	-	-	-	-	3	3	7	5	1	1	-	1	

TABLE 4.12

VITAL STATISTICS BY SELECTED CITIES[1]
MICHIGAN RESIDENTS, 1977

Area	Live Births By Residence Number	Deaths By Residence Number	Infant Deaths By Residence		Fetal Deaths By Residence	
			Number	Rate	Number	Ratio
Allen Park	326	326	2	6.1	1	3.1
Ann Arbor	1,352	421	11	8.1	12	8.9
Battle Creek	756	554	20	26.5	7	9.3
Bay City	706	511	9	12.7	6	8.5
Birmingham	331	243	5	15.1	3	9.1
Dearborn	960	1,052	13	13.5	11	11.5
Dearborn Heights	722	521	9	12.5	5	6.9
Detroit	20,665	14,569	402	19.5	290	14.0
East Detroit	441	424	6	13.6	5	11.3
East Lansing	476	101	2	4.2	3	6.3
Ferndale	412	308	4	9.7	5	12.1
Flint	3,541	1,656	72	20.3	39	11.0
Garden City	528	202	6	11.4	3	5.7
Grand Rapids	3,219	1,839	55	17.1	25	7.8
Hamtramck	304	383	4	13.2	2	6.6
Highland Park	440	329	13	29.5	5	11.4
Holland	382	226	5	13.1	4	10.5
Inkster	619	239	9	14.5	5	8.1
Jackson	799	544	15	18.8	10	12.5
Kalamazoo	1,495	643	23	15.4	10	6.7
Lansing	2,626	1,017	48	18.3	18	6.9
Lincoln Park	649	352	8	12.3	5	7.7
Livonia	1,029	612	13	12.6	6	5.8
Madison Heights	598	188	6	10.0	3	5.0
Midland	511	218	7	13.7	2	3.9
Muskegon	869	575	12	13.8	11	12.7
Oak Park	411	324	6	14.6	-	-
Pontiac	1,818	705	33	18.2	32	17.6
Portage	463	143	9	19.4	2	4.3
Port Huron	658	384	9	13.7	6	9.1
Roseville	892	394	10	11.2	10	11.2
Royal Oak	1,010	617	10	9.9	4	4.0
Saginaw	1,726	856	30	17.4	12	7.0
St. Clair Shores	766	607	4	5.2	5	6.5
Southfield	691	618	18	26.0	2	2.9
Southgate	463	168	3	6.5	5	10.8
Sterling Heights	1,454	335	20	13.8	14	9.6
Taylor	1,365	413	19	13.9	8	5.9
Troy	837	301	16	19.1	8	9.6
Warren	1,804	952	29	16.1	9	5.0
Westland	1,422	473	15	10.5	14	9.9
Wyandotte	542	377	7	12.9	8	14.8
Wyoming	1,025	352	2	2.0	3	2.9
Ypsilanti	601	204	9	15.0	6	10.0

[1] 25,000 population or over

TABLE 4.13

SELECTED CAUSES OF DEATH BY COUNTY
MICHIGAN RESIDENTS, 1977

Area	All Causes	Diseases of the Heart	Malignant Neoplasms	Cerebrovascular Disease	Accidents, All Forms	(Motor Vehicle Accidents)	Diabetes Mellitus	Influenza & Pneumonia	Arteriosclerosis	Tuberculosis, All Forms	All Other Infective & Parasitic Diseases	Cirrhosis of the Liver	Nephritis & Nephrosis	Infections of Kidney	Maternal Deaths, All Forms	Suicide & Self-Inflicted Injury	Homicide & Injury Purposely Inflicted by Other Persons - Most in War	Residual
STATE	74,144	28,895	15,125	6,818	3,945	1,993	1,615	1,660	1,184	97	512	1,356	334	85	11	1,280	946	10,301
Alcona	114	43	16	15	13	11	1	1	2	-	-	1	-	-	-	1	-	21
Alger	107	42	16	11	6	4	-	2	4	-	1	4	-	-	-	2	-	19
Allegan	582	233	117	60	36	23	16	10	10	-	2	3	5	-	1	6	1	82
Alpena	269	103	62	23	15	6	3	4	2	-	4	3	2	-	-	6	-	42
Antrim	193	67	45	21	15	3	2	10	4	-	3	-	-	-	-	1	-	25
Arenac	133	54	20	18	11	6	2	2	6	-	-	2	1	-	-	2	-	15
Baraga	97	33	15	11	9	7	8	8	-	-	-	2	1	-	-	1	-	9
Barry	354	135	73	32	28	17	7	9	7	1	1	6	2	1	-	5	-	47
Bay	954	404	192	70	75	40	11	10	15	-	5	16	3	-	-	14	3	136
Benzie	123	52	24	10	6	5	2	6	2	-	1	1	-	-	-	2	1	16
Berrien	1,523	612	300	140	77	29	28	34	31	2	13	14	5	6	-	33	18	212
Branch	384	144	78	38	17	14	16	9	9	2	1	1	1	1	-	6	-	61
Calhoun	1,283	480	247	128	63	25	47	32	26	4	6	31	11	-	-	15	16	177
Cass	406	177	78	32	25	11	4	10	6	-	-	6	-	1	-	9	6	54
Charlevoix	300	83	44	23	8	4	4	2	6	-	-	6	-	-	-	2	-	22
Cheboygan	210	68	45	16	13	8	4	6	6	-	1	-	2	-	-	4	-	25
Chippewa	312	136	79	22	14	5	8	11	2	-	-	1	-	-	-	5	2	32
Clare	238	122	43	17	12	8	1	3	-	-	-	4	1	-	-	5	-	30
Clinton	328	131	69	19	19	11	11	8	11	-	2	6	-	-	-	7	4	41
Crawford	86	37	15	9	6	2	3	-	-	1	1	1	-	-	-	1	-	12
Delta	389	162	62	33	33	16	9	6	16	-	2	6	2	-	-	8	2	68
Dickinson	327	125	79	43	18	6	3	7	9	-	-	3	1	-	-	5	-	36
Eaton	490	184	100	44	23	10	5	13	17	-	3	1	-	-	1	4	4	89
Emmet	222	79	47	23	22	12	6	3	2	-	2	3	-	-	-	4	-	30
Genesee	3,274	1,258	633	316	206	116	70	58	63	4	26	36	8	3	2	70	54	467
Gladwin	202	98	41	13	10	4	5	5	2	1	3	-	2	-	-	4	-	18
Gogebic	283	130	58	16	12	6	6	4	3	-	-	3	2	1	-	5	-	43
Grand Traverse	395	161	69	49	27	16	9	13	6	1	1	6	1	-	-	4	1	47
Gratiot	333	121	58	53	21	14	8	3	11	-	1	4	1	-	-	4	-	48
Hillsdale	345	122	73	21	15	7	13	14	8	-	2	4	4	2	-	10	-	57
Houghton	425	189	81	43	12	3	10	13	4	-	1	8	1	-	-	6	4	53
Huron	410	168	60	70	21	11	11	7	6	-	3	7	1	-	-	1	-	55
Ingham	1,634	577	332	153	100	57	34	39	30	-	16	27	6	3	-	39	15	261
Ionia	417	150	82	51	22	14	14	12	4	2	4	5	5	-	-	6	1	59
Iosco	282	123	59	26	22	10	1	6	3	-	-	2	1	-	-	4	-	35
Iron	187	81	36	31	11	8	1	3	1	-	-	1	1	1	-	2	-	16
Isabella	330	139	70	35	27	14	8	4	4	-	3	4	-	1	-	3	2	30
Jackson	1,295	482	261	136	62	31	25	32	41	2	4	18	5	-	-	30	8	189
Kalamazoo	1,338	494	285	128	77	37	22	45	24	1	9	17	6	3	1	21	6	197
Kalkaska	92	34	20	12	3	2	2	3	2	-	1	1	-	-	-	3	1	10
Kent	3,365	1,297	683	329	178	89	69	83	97	2	29	55	14	3	-	35	19	472
Keweenaw	31	8	7	5	4	2	1	2	-	-	-	-	1	-	-	-	-	3
Lake	115	51	25	10	4	3	3	2	1	-	-	-	1	-	-	1	-	17
Lapeer	462	167	97	49	26	15	17	12	8	-	4	3	3	-	-	7	1	68
Leelanau	127	58	27	12	8	4	3	4	2	-	-	-	1	-	-	1	-	11
Lenawee	701	276	143	48	39	17	23	9	26	-	3	6	2	1	-	8	4	113
Livingston	508	180	111	48	31	20	10	14	8	1	3	6	1	-	-	16	4	75
Luce	88	35	21	8	9	4	-	1	3	-	-	1	-	-	-	-	-	10
Mackinac	116	48	23	14	8	4	1	4	3	-	-	2	1	-	-	1	-	11
Macomb	4,119	1,591	928	329	193	107	75	80	54	5	27	76	21	2	-	96	15	607
Manistee	272	109	40	37	13	3	3	5	10	-	3	3	1	2	-	5	-	41
Marquette	527	211	91	57	33	14	5	15	12	1	4	11	1	1	-	6	2	75
Mason	247	103	54	17	14	4	8	8	2	-	-	2	1	-	-	4	-	34
Mecosta	214	92	40	17	11	8	7	6	5	1	-	2	-	-	-	4	-	29
Menominee	300	123	48	26	23	10	7	7	16	-	1	4	-	-	-	5	2	38
Midland	418	163	91	43	36	20	5	9	8	-	1	6	2	2	-	5	1	66
Missaukee	78	35	12	8	3	2	1	1	2	-	-	1	-	-	-	-	-	15
Monroe	987	371	180	76	61	31	30	13	19	-	4	13	6	3	-	22	5	124
Montcalm	432	165	80	53	35	17	10	9	7	-	6	5	3	-	-	9	-	70
Montmorency	77	35	14	7	3	2	2	1	3	-	-	-	1	-	-	2	-	9
Muskegon	1,315	511	259	145	65	32	36	25	29	1	10	19	7	-	-	15	9	104
Newaygo	313	108	71	34	18	9	13	7	10	1	1	-	1	-	-	7	-	42
Oakland	6,637	2,592	1,512	584	327	165	146	146	57	9	43	103	27	2	1	157	51	878
Oceana	230	79	38	26	14	10	6	7	6	-	2	5	2	1	-	3	1	40
Ogemaw	191	80	39	14	7	5	5	3	6	-	1	3	-	1	-	-	-	32
Ontonagon	111	31	26	13	12	5	4	1	10	-	1	2	-	-	-	1	-	10
Osceola	180	75	41	22	9	5	4	4	1	-	-	1	3	-	-	1	-	19
Oscoda	72	36	13	6	3	3	-	2	-	-	1	-	-	-	-	-	-	8
Otsego	88	36	22	5	6	6	3	1	1	-	-	2	-	-	-	1	-	11
Ottawa	935	348	173	85	63	30	17	14	18	-	3	6	1	6	-	15	4	182
Presque Isle	143	60	30	17	9	6	2	4	1	-	1	-	3	-	-	1	-	15
Roscommon	190	78	49	16	4	3	5	1	8	-	-	4	-	-	-	3	-	22
Saginaw	1,705	658	305	176	111	62	38	28	37	2	6	31	5	3	-	27	10	246
St. Clair	1,182	435	246	129	78	45	31	30	40	2	2	23	2	-	-	17	5	142
St. Joseph	457	171	90	40	40	15	13	17	9	-	1	5	-	2	-	6	-	63
Sanilac	399	150	73	55	31	17	10	4	7	-	1	9	2	1	-	4	-	52
Schoolcraft	105	40	16	12	8	5	2	1	5	-	-	1	1	-	-	1	-	16
Shiawassee	508	174	112	65	35	24	10	9	15	1	1	2	4	-	-	6	1	73
Tuscola	480	183	96	56	30	20	12	3	8	-	5	6	1	-	-	4	7	49
Van Buren	621	236	114	54	53	31	13	14	9	-	6	5	2	3	-	14	3	95
Washtenaw	1,219	415	271	119	86	49	19	23	11	4	14	19	3	-	-	33	11	191
Wayne	23,173	9,159	4,731	1,911	982	427	501	555	173	44	203	646	128	31	5	377	599	1,128
Wexford	210	82	36	24	9	3	4	9	10	-	1	-	-	-	-	2	1	12
County Not Stated	30	5	1	2	3	1	-	-	-	-	-	-	1	-	-	-	3	15

TABLE 4.14
REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES BY COUNTY
MICHIGAN RESIDENTS, 1977

Area	Total	Gonorrhea	Streptococcal Sore Throat (Including Scarlet Fever)	Chicken Pox	Infectious & Serum Hepatitis[1]	Mumps	Measles	Tuberculosis[2]	Syphilis	Rubella	Salmonella Infections	Dysentery Bacillary	Whooping Cough	Meningococcal Infections	All Others[3]
STATE	107,210	36,794	11,047	10,607	2,686	2,139	1,192	1,290	1,185	1,160	989	352	71	51	322
Alcona	94	6	48	40	-	-	-	2	-	1	-	-	-	-	-
Alger	17	9	4	-	1	-	2	1	-	1	1	-	-	-	-
Allegan	704	81	232	333	23	12	6	8	2	15	1	-	7	1	10
Alpena	225	17	14	161	3	2	8	2	-	-	1	-	-	-	-
Antrim	13	11	-	-	2	-	-	2	-	-	-	-	-	-	-
Arenac	175	3	167	3	1	-	-	2	-	1	-	-	-	1	1
Baraga	83	-	4	77	1	-	1	-	-	-	-	-	-	-	-
Barry	512	57	243	193	12	4	1	2	1	1	15	1	-	-	4
Bay	1,360	157	258	765	11	17	21	5	11	100	2	8	1	1	4
Benzie	309	9	15	89	2	188	4	1	-	2	-	-	-	-	1
Berrien	1,490	1,342	8	16	55	4	21	51	19	1	16	11	-	-	11
Branch	402	96	107	178	12	4	4	11	1	-	10	6	-	-	1
Calhoun	900	334	73	171	11	11	37	16	14	11	6	-	-	-	6
Cass	310	58	54	152	9	19	17	3	3	14	2	-	-	-	2
Charlevoix	10	8	-	-	1	-	1	1	-	-	1	-	-	-	-
Cheboygan	64	6	7	41	1	1	6	-	-	-	-	-	-	-	1
Chippewa	410	50	255	86	4	4	2	2	-	4	-	-	-	-	1
Clare	14	7	-	3	-	-	-	2	1	1	1	-	-	-	-
Clinton	150	57	24	54	1	5	1	-	-	2	2	-	-	-	4
Crawford	111	9	69	23	1	1	3	-	-	3	-	-	-	-	1
Delta	369	51	106	169	6	16	1	5	-	-	1	-	3	-	-
Dickinson	327	42	58	26	2	190	8	1	-	1	-	-	-	-	2
Eaton	1,186	99	713	259	28	1	14	2	-	46	-	-	-	-	4
Emmet	25	22	-	-	-	-	-	1	1	-	-	-	-	-	2
Genesee	5,286	3,200	643	1,133	116	50	81	51	26	35	51	8	-	-	13
Gladwin	23	11	8	2	1	-	1	2	-	-	1	-	-	-	-
Gogebic	288	9	27	246	-	4	1	5	-	1	-	-	-	-	-
Grand Traverse	552	27	88	361	5	46	14	6	2	7	2	-	-	-	1
Gratiot	372	26	29	297	9	5	1	1	1	2	-	-	-	-	-
Hillsdale	430	50	42	274	10	10	11	6	1	12	1	-	-	-	7
Houghton	135	13	17	70	1	3	5	1	2	2	-	-	-	-	5
Huron	279	11	23	229	-	5	2	1	-	4	-	-	-	-	-
Ingham	9,576	2,533	5,994	798	141	20	4	55	22	64	36	17	1	2	5
Ionia	630	65	151	179	6	16	4	2	2	7	1	-	-	-	-
Iosco	148	12	127	1	1	2	-	-	-	5	1	-	-	-	1
Iron	219	10	96	11	-	100	1	1	1	-	-	-	-	-	2
Isabella	81	58	-	2	6	-	-	1	-	15	5	2	-	-	2
Jackson	1,433	592	266	422	28	55	12	16	7	20	17	1	2	-	9
Kalamazoo	2,046	1,201	495	284	12	1	1	26	21	4	12	13	3	-	50
Kalkaska	71	17	22	26	-	1	1	-	-	4	-	-	-	-	1
Kent	18,059	2,106	13,090	2,585	86	51	91	48	36	14	56	6	2	1	23
Keweenaw	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Lake	39	16	-	18	-	1	1	-	1	-	1	-	-	-	1
Lapeer	460	16	42	342	12	10	14	1	-	24	-	-	-	-	5
Leelanau	192	1	24	162	1	2	-	-	-	2	-	-	-	-	-
Lenawee	655	155	78	271	49	17	59	6	1	23	9	6	2	-	1
Livingston	801	33	185	384	12	156	3	1	2	16	-	-	-	-	-
Luce	27	8	-	15	-	1	1	-	-	1	-	-	-	-	-
Mackinac	25	17	-	-	-	1	-	-	-	-	-	-	-	-	-
Macomb	4,479	515	523	3,043	177	65	29	53	53	72	30	10	2	2	18
Manistee	122	12	21	71	5	7	1	3	1	2	-	-	-	-	-
Marquette	901	155	550	67	14	6	3	1	3	3	19	-	1	-	12
Mason	323	46	26	141	7	9	23	1	-	71	-	-	-	-	1
Mecosta	186	64	286	26	3	2	2	3	1	2	-	-	-	-	-
Menominee	188	19	51	106	1	-	8	2	1	2	2	2	-	-	2
Midland	746	89	43	538	1	4	2	4	1	55	-	-	-	-	2
Milwaukee	81	5	5	13	1	1	52	-	1	1	1	-	-	-	-
Monroe	631	179	111	260	29	20	11	12	9	12	-	1	1	-	10
Montcalm	481	42	12	362	3	21	13	5	-	28	14	1	-	-	1
Montmorency	107	1	4	92	2	1	6	-	-	1	-	-	-	-	-
Muskegon	1,465	717	136	517	41	18	22	28	6	10	12	1	1	-	4
Newaygo	166	28	11	103	15	1	-	1	1	4	-	-	-	-	1
Oakland	8,025	1,896	1,659	3,904	121	201	11	84	61	78	85	15	12	5	182
Oceana	159	21	1	127	3	-	-	2	1	1	-	1	-	-	-
Ogemaw	18	3	6	2	-	1	-	2	2	-	1	-	-	-	1
Ontonagon	40	1	5	8	2	22	2	-	-	-	-	-	-	-	-
Osceola	7	6	-	-	-	-	-	1	1	-	-	-	-	-	-
Oscoda	55	4	4	38	-	-	-	1	-	-	-	-	-	-	-
Otsego	11	5	-	6	-	-	-	1	-	-	1	-	-	-	-
Ottawa	1,174	260	214	645	18	9	1	10	3	3	18	2	11	1	10
Presque Isle	105	7	5	76	1	3	4	-	2	2	-	-	-	-	-
Roscommon	17	15	-	1	1	-	-	2	2	-	-	-	-	-	-
Saginaw	2,747	1,421	292	925	19	29	71	11	16	10	28	82	1	1	11
St. Clair	885	269	137	401	15	15	41	7	3	5	21	-	-	1	3
St. Joseph	277	55	36	152	7	10	4	10	1	14	3	-	-	-	7
Sanilac	38	18	-	13	-	1	1	1	1	1	-	-	-	-	-
Schoolcraft	147	6	114	18	-	7	1	1	1	1	-	-	-	-	-
Shiawassee	339	86	57	156	18	16	3	5	-	5	-	-	1	-	-
Tuscola	373	52	22	275	4	7	5	3	2	6	1	-	1	-	2
Van Buren	585	156	118	254	18	11	8	22	4	16	5	6	1	-	10
Washtenaw	1,856	1,217	151	91	95	1	76	29	20	1	12	1	-	-	1
Wayne	29,070	16,657	2,175	6,682	1,066	752	514	599	792	232	426	12	19	27	182
Wexford	108	36	22	26	4	9	6	3	-	2	-	1	-	-	-
State Homes	36	-	-	13	15	-	2	4	-	2	1	24	-	-	-

[1] 852 of these were serum hepatitis

[2] Effective January, 1975, a new diagnostic classification system for tuberculosis was adopted. As a result, direct comparison of case counts and rates between 1975 and preceding years will not be possible.

[3] Includes:

Meningitis, Aseptic	207	Ring Worm	27	Congenital Rubella	1
Meningitis Influenzal	151	Malaria	17	Rocky Mountain Spotted Fever	2
Meningitis Excluding Aseptic	99	Typhoid Fever	13	Tetanus	2
Staphylococcal Infections	75	Dysentery Amebic	11	Undulent Fever	1
Encephalitis Infections	59	Diarrhea Epidemic Infants (under 1 yr.)	6	Leprosy	1
Botulism	45	Food Poisoning	1		

TABLE 4.15

NUMBER OF DEATHS BY CAUSE
MICHIGAN RESIDENTS, 1977

ICDA LIST NUMBER	CAUSE OF DEATH	NUMBER
	I. INFECTIVE AND PARASITIC DISEASES (000-136)	
003	Other salmonella infections	1
008	Enteritis due to other specified organisms	5
009	Diarrheal disease	53
010	Silicotuberculosis	1
011	Pulmonary tuberculosis	59
012	Other respiratory tuberculosis	7
013	Tuberculosis of meninges and central nervous system	7
014	Tuberculosis of intestine peritoneum mesenteric	3
015	Tuberculosis of bones and joints	2
016	Tuberculosis of genitourinary system	1
017	Tuberculosis of other organs	1
018	Disseminated tuberculosis	5
019	Late effects of tuberculosis	11
034	Strept throat and scarlet fever	1
036	Meningococcal infection	9
037	Tetanus	1
038	Septicemia	278
039	Other bacterial diseases	45
044	Late effects of acute poliomyelitis	6
045	Aseptic meningitis due to enterovirus	2
046	Other enterovirus diseases of central nervous system	3
052	Chickenpox	1
053	Herpes zoster	5
054	Herpes simplex	6
056	Rubella	1
065	Viral encephalitis, unspecified	4
066	Late effects of viral encephalitis	1
070	Infectious hepatitis	18
072	Mumps	1
074	Specific diseases due to coxsackie virus	2
075	Infectious mononucleosis	1
079	Other viral diseases	18
093	Cardiovascular syphilis	1
094	Syphilis of central nervous system	2
112	Monilasis	5
115	Histoplasmosis	1
116	Blastomycosis	4
117	Other systemic mycosis	5
120	Schistosomiasis	1
127	Other intestinal helminthiasis	1
135	Sarcoidosis	17
136	Other and unspecified infective and parasitic diseases	11
	II. NEOPLASMS (140-239)	
140	Malignant neoplasm of lip	5
141	Malignant neoplasm of tongue	70
142	Malignant neoplasm of salivary gland	15
143	Malignant neoplasm of gum	6
144	Malignant neoplasm of floor of mouth	4
145	Malignant neoplasm of other and unspecified parts of mouth	57
146	Malignant neoplasm of oropharynx	40
147	Malignant neoplasm of nasopharynx	21
148	Malignant neoplasm of hypopharynx	15
149	Malignant neoplasm of pharynx, unspecified	43
150	Malignant neoplasm of esophagus	332
151	Malignant neoplasm of stomach	580
152	Malignant neoplasm of small intestine, including duodenum	27
153	Malignant neoplasm of large intestine, except rectum	1,610
154	Malignant neoplasm of rectum and rectosigmoid junction	330
155	Malignant neoplasm of liver and intrahepatic bile ducts, specified as primary	89
156	Malignant neoplasm of gallbladder and bile ducts	179
157	Malignant neoplasm of pancreas	747
158	Malignant neoplasm of peritoneum and retroperitoneal tissue	34
159	Malignant neoplasm of unspecified digestive organs	22
160	Malignant neoplasm of nose, nasal cavities, middle ear, and accessory sinuses	12
161	Malignant neoplasm of larynx	149
162	Malignant neoplasm of trachea, bronchus, and lung	1,813
163	Malignant neoplasm of other and unspecified respiratory organs	13
170	Malignant neoplasm of bone	53
171	Malignant neoplasm of connective and other soft tissue	64
172	Malignant melanoma of skin	112
173	Other malignant neoplasm of skin	48
174	Malignant neoplasm of breast	1,359
180	Malignant neoplasm of cervix uteri	184
181	Chorionepithelioma	2
182	Other malignant neoplasm of uterus	208
183	Malignant neoplasm of ovary, fallopian tube, and broad ligament	425
184	Malignant neoplasm of other and unspecified female genital organs	39
185	Malignant neoplasm of prostate	805
186	Malignant neoplasm of testis	35
187	Malignant neoplasm of other and unspecified male genital organs	12
188	Malignant neoplasm of bladder	186
189	Malignant neoplasm of other and unspecified urinary organs	274
190	Malignant neoplasm of eye	12
191	Malignant neoplasm of brain	283
192	Malignant neoplasm of other parts of nervous system	51
193	Malignant neoplasm of thyroid gland	40
194	Malignant neoplasm of other endocrine glands	19
195	Malignant neoplasm of ill-defined sites	119
196	Secondary and unspecified malignant neoplasm of lymph nodes	2
197	Secondary malignant neoplasm of respiratory an digestive systems	246
198	Other secondary malignant neoplasms	70
199	Malignant neoplasm without specification of site	722
200	Lymphosarcoma and reticulum-cell sarcoma	194
201	Hodgkin's disease	86
202	Other neoplasms of lymphoid tissue	249
203	Multiple myeloma	246
204	Lymphatic leukemia	151
205	Myeloid leukemia	274
206	Monocytic leukemia	18
207	Other and unspecified leukemia	155
208	Polycythemia vera	20
209	Myelofibrosis	41
211	Benign neoplasm of other parts of digestive system	9
212	Benign neoplasm of respiratory system	5
215	Other benign neoplasm of muscular and connective tissue	2
216	Benign neoplasm of skin	1
218	Uterine fibroma	1
220	Benign neoplasm of ovary	1
225	Benign neoplasm of brain and other parts of nervous system	15
226	Benign neoplasm of endocrine glands	9
227	Hemangioma and lymphangioma	7
228	Benign neoplasm of other and unspecified organs and tissues	9
230	Neoplasm of unspecified nature of digestive organs	5
231	Neoplasm of unspecified nature of respiratory organs	8
235	Neoplasm of unspecified nature of ovary	1
237	Neoplasm of unspecified nature of other genitourinary organs	1
238	Neoplasm of unspecified nature of eye, brain, and other parts of nervous system	11
239	Neoplasm of unspecified nature of other and unspecified organs	10
	III. ENDOCRINE, NUTRITIONAL, AND METABOLIC DISEASES (240-279)	
240	Simple goiter	5
242	Thyrotoxicosis with or without goiter	9
244	Myxedema	21
246	Other diseases of thyroid gland	1
250	Diabetes mellitus	1,615
251	Disorders of pancreatic internal secretion other than diabetes mellitus	1
252	Diseases of parathyroid gland	1
253	Diseases of pituitary gland	2
254	Diseases of thymus gland	2
255	Diseases of adrenal glands	14
258	Polyglandular dysfunction and other diseases of endocrine glands	15
261	Thiamine deficiency	1
266	Other vitamin deficiency	1
268	Nutritional marasmus	30
269	Other nutritional deficiency	19
272	Congenital disorders of lipid metabolism	5
273	Other and unspecified congenital disorders of metabolism	17
274	Gout	9
275	Plasma protein abnormalities	16
276	Amyloidosis	10
277	Obesity not specified as of endocrine origin	50
278	Other hyperalimentation	3
279	Other and unspecified metabolic diseases	11
	IV. DISEASES OF THE BLOOD AND BLOOD-FORMING ORGANS (280-289)	
280	Iron deficiency anemias	2
281	Other deficiency anemias	11
282	Hereditary hemolytic anemias	25
283	Acquired hemolytic anemias	7
284	Aplastic anemia	45

TABLE 4.13

NUMBER OF DEATHS BY CAUSE
MICHIGAN RESIDENTS, 1977 (continued)

ICDA LIST NUMBER	CAUSE OF DEATH	NUMBER
285	Other and unspecified anemias	37
286	Coagulation defects	44
287	Purpura and other hemorrhagic conditions	22
288	Agranulocytosis	12
289	Other diseases of blood and blood-forming organs	16
	V. MENTAL DISORDERS (290-315)	
290	Senile and presenile dementia	33
291	Alcoholic psychosis	18
295	Schizophrenia	8
296	Affective psychoses	2
298	Other psychoses	2
299	Unspecified psychosis	9
300	Neuroses	1
303	Alcoholism	128
304	Drug dependence	71
306	Special symptoms not elsewhere classified	4
309	Mental disorders not specified as psychotic associated with physical conditions	45
313	Severe mental retardation	3
314	Profound mental retardation	2
315	Unspecified mental retardation	8
	VI. DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS (320-389)	
320	Meningitis	59
321	Phlebitis and thrombophlebitis of intracranial venous sinuses	2
322	Intracranial and intraspinal abscess	11
323	Encephalitis, myelitis, and encephalomyelitis	8
324	Late effects of intracranial abscess or pyogenic infection	1
330	Hereditary neuromuscular disorders	41
331	Hereditary diseases of the striatopallidal system	19
332	Hereditary ataxia	2
333	Other hereditary and familial diseases of nervous system	11
340	Multiple sclerosis	65
341	Other demyelinating diseases of central nervous system	1
342	Paralysis agitans	138
343	Cerebral spastic infantile paralysis	14
344	Other cerebral paralysis	41
345	Epilepsy	86
347	Other diseases of brain	111
348	Motor neurone disease	94
349	Other diseases of spinal cord	9
350	Facial paralysis	1
354	Polyneuritis and polyradiculitis	6
355	Other forms of neuralgia and neuritis	1
357	Other diseases of peripheral nerves except autonomic	6
374	Cataract	2
375	Glaucoma	1
380	Otitis externa	1
381	Otitis media without mention of mastoiditis	3
383	Mastoiditis without mention of otitis media	3
	VII. DISEASES OF THE CIRCULATORY SYSTEM (390-458)	
390	Rheumatic fever with no heart involvement	1
391	Rheumatic fever with heart involvement	4
393	Diseases of pericardium	2
394	Diseases of mitral valve	135
395	Diseases of aortic valve	157
396	Diseases of mitral and aortic valves	48
397	Diseases of other endocardial structures	20
398	Other heart disease, specified as rheumatic	112
400	Malignant hypertension	29
401	Essential benign hypertension	40
402	Hypertensive heart disease	321
403	Hypertensive renal disease	158
404	Hypertensive heart and renal disease	91
410	Acute myocardial infarction	13,625
411	Other acute and subacute forms of ischemic heart disease	93
412	Chronic ischemic heart disease	12,499
413	Angina pectoris	9
420	Acute pericarditis, nonrheumatic	2
421	Acute and subacute endocarditis	36
422	Acute myocarditis	9
423	Chronic disease of pericardium, nonrheumatic	22
424	Chronic disease of endocardium	40
425	Cardiomyopathy	189
426	Pulmonary heart disease	78
427	Symptomatic heart disease	1,644
428	Other myocardial insufficiency	68
429	Ill-defined heart disease	90
430	Subarachnoid hemorrhage	161
431	Cerebral hemorrhage	864
432	Occlusion of pre-cerebral arteries	94
433	Cerebral thrombosis	1,774
434	Cerebral embolism	31
435	Transient cerebral ischemia	3
436	Acute but ill-defined cerebrovascular disease	2,421
437	Generalized ischemic cerebrovascular disease	1,161
438	Other and ill-defined cerebrovascular disease	125
440	Arteriosclerosis	1,164
441	Aortic aneurysm (nonsyphilitic)	584
442	Other aneurysm	67
443	Other peripheral vascular disease	37
444	Arterial embolism and thrombosis	220
445	Gangrene	124
446	Polyarteritis nodosa and allied conditions	23
447	Other diseases of arteries and arterioles	40
448	Diseases of capillaries	3
450	Pulmonary embolism and infarction	436
451	Phlebitis and thrombophlebitis	66
453	Other venous embolism and thrombosis	29
454	Varicose veins of lower extremities	2
455	Hemorroids	2
456	Varicose veins of other sites	22
457	Noninfective disease of lymphatic channels	1
458	Other diseases of circulatory system	30
	VIII. DISEASES OF THE RESPIRATORY SYSTEM (460-519)	
461	Acute sinusitis	2
462	Acute pharyngitis	1
464	Acute laryngitis and tracheitis	3
465	Acute upper respiratory infection of multiple or unspecified sites	16
466	Acute bronchitis and bronchiolitis	22
470	Influenza, unqualified	8
471	Influenza with pneumonia	9
472	Influenza with other respiratory manifestations	4
480	Viral pneumonia	34
481	Pneumococcal pneumonia	113
482	Other bacterial pneumonia	32
483	Pneumonia due to other specified organism	8
484	Acute interstitial pneumonia	13
485	Bronchopneumonia, unspecified	343
486	Pneumonia, unspecified	1,096
490	Bronchitis, unqualified	27
491	Chronic bronchitis	148
492	Emphysema	675
493	Asthma	78
500	Hypertrophy of tonsils and adenoids	1
503	Chronic sinusitis	2
508	Other diseases of upper respiratory tract	11
510	Empyema	22
511	Pleurisy	26
512	Spontaneous pneumothorax	3
513	Abscess of lung	23
514	Pulmonary congestion and hypostasis	20
515	Pneumoconiosis due to silica and silicates	16
517	Other chronic interstitial pneumonia	141
518	Bronchiectasis	23
519	Other diseases of respiratory system	887
	IX. DISEASES OF THE DIGESTIVE SYSTEM (520-577)	
526	Diseases of the jaws	2
527	Diseases of the salivary glands	2
528	Diseases of oral soft tissues excluding gingiva and tongue	1
530	Diseases of esophagus	34
531	Ulcer of stomach	117
532	Ulcer of duodenum	80
533	Peptic ulcer, site unspecified	46
534	Gastrojejunal ulcer	29
535	Gastritis and duodenitis	30
536	Disorders of function of stomach	8
537	Other diseases of stomach and duodenum	16
540	Acute appendicitis	14
541	Appendicitis, unqualified	5
551	Other hernia of abdominal cavity without mention of obstruction	31
552	Inguinal hernia with obstruction	14
553	Other hernia of abdominal cavity with obstruction	30
560	Intestinal obstruction without mention of hernia	147
561	Non-infective gastroenteritis and colitis	5
562	Diverticula of intestine	110
563	Chronic enteritis and ulcerative colitis	31
564	Functional disorders of intestines	5
566	Abscess of anal and rectal regions	4
567	Peritonitis	48
568	Peritoneal adhesions	2
569	Other diseases of intestines and peritoneum	238
570	Acute and subacute necrosis of liver	19
571	Cirrhosis of liver	1,356
572	Suppurative hepatitis and liver abscess	7
573	Other diseases of liver	145
574	Cholelithiasis	60

TABLE 4.15

NUMBER OF DEATHS BY CAUSE
MICHIGAN RESIDENTS, 1977 (continued)

ICDA LIST NUMBER	CAUSE OF DEATH	NUMBER
575	Cholecystitis and cholangitis, without mention of calculus	35
576	Other diseases of gallbladder and biliary ducts	51
577	Diseases of pancreas	128
	X. DISEASES OF THE GENITOURINARY SYSTEM (580-629)	
580	Acute nephritis	66
581	Nephrotic syndrome	14
582	Chronic nephritis	230
583	Nephritis, unqualified	71
584	Renal sclerosis, unqualified	3
590	Infections of kidney	85
591	Hydronephrosis	5
592	Calculus of kidney and ureter	21
593	Other diseases of kidney and ureter	258
594	Calculus of other parts of urinary system	1
595	Cystitis	12
596	Other diseases of bladder	15
598	Stricture of urethra	4
599	Other diseases of urinary tract	80
600	Hyperplasia of prostate	28
601	Prostatitis	1
602	Other diseases of prostate	6
607	Other diseases of male genital organs	2
611	Other diseases of breast	2
614	Salpingitis and oophoritis unqualified	1
615	Other diseases of ovary and fallopian tube	1
616	Diseases of paramentrium and pelvic peritoneum (female)	8
622	Infective disease of uterus, vagina and vulva	1
623	Uterovaginal prolapse	1
625	Other diseases of uterus	2
626	Disorders of menstruation	1
629	Other diseases of female genital organs	4
	XI. COMPLICATIONS OF PREGNANCY, CHILDBIRTH, AND THE PUERPERIUM (630-678)	
631	Ectopic pregnancy	4
653	Delivery complicated by other postpartum hemorrhage	1
661	Delivery with other complications	3
673	Puerperal pulmonary embolism	1
674	Cerebral hemorrhage in puerperium	2
	XII. DISEASES OF THE SKIN AND SUBCUTANEOUS TISSUE (680-709)	
680	Boils and carbuncle	1
682	Other cellulitis and abscess	15
686	Other local infections of skin and subcutaneous tissue	7
694	Pemphigus	5
695	Erythematous conditions	13
696	Psoriasis and similar disorders	3
707	Chronic ulcer of skin	34
709	Other diseases of skin	2
	XIII. DISEASES OF THE MUSCULOSKELETAL SYSTEM AND CONNECTIVE TISSUE (710-738)	
712	Rheumatoid arthritis and allied conditions	58
713	Osteoarthritis and allied conditions	14
715	Arthritis, unspecified	7
716	Polymyositis and dermatomyositis	4
717	Other nonarticular rheumatism	2
720	Osteomyelitis and periostitis	10
721	Osteitis deformans	1
723	Other diseases of bone	9
725	Displacement of intervertebral disc	1
729	Other diseases of joint	3
732	Infectimyositis other diseases of tendon fascia	2
733	Other diseases of muscle, tendon, and fascia	15
734	Diffuse diseases of connective tissue	74
735	Curvature of spine	3
738	Other deformities	1
	XIV. CONGENITAL ANOMALIES (740-759)	
740	Anencephalus	32
741	Spina bifida	11
742	Congenital hydrocephalus	41
743	Other congenital anomalies of nervous system	23
744	Congenital anomalies of eye	1
745	Congenital anomalies of ear, face and neck	1
746	Congenital anomalies of heart	204
747	Other congenital anomalies of circulatory system	36
748	Congenital anomalies of respiratory system	23
750	Other congenital anomalies of upper alimentary tract	3
751	Other congenital anomalies of digestive system	16
752	Congenital anomalies of genital organs	1
753	Congenital anomalies of urinary system	32
755	Other congenital anomalies of limbs	1
756	Other congenital anomalies of musculoskeletal system	14
758	Other and unspecified congenital anomalies	11
759	Congenital syndromes affecting multiple systems	71
	XV. CERTAIN CAUSES OF PERINATAL MORBIDITY AND MORTALITY (760-779)	
761	Other maternal conditions unrelated to pregnancy	6
762	Toxemia of pregnancy	1
763	Maternal ante- and intrapartum infection	12
766	Difficult labor with malposition of fetus	4
768	Difficult labor with other and unspecified complications	4
769	Other complications of pregnancy and childbirth	163
770	Conditions of placenta	18
771	Conditions of umbilical cord	5
772	Birth injury without mention of cause	60
775	Hemolytic disease of newborn without mention of kernicterus	6
776	Anoxic and hypoxic conditions not elsewhere classifiable	448
777	Immaturity, unqualified	155
778	Other conditions of fetus or newborn	138
	XVI. SYMPTOMS AND ILL-DEFINED CONDITIONS (780-796)	
780	Symptoms referable to nervous system senses	7
782	Symptoms referable to cardiovascular and lymphatic system	61
783	Symptoms referable to respiratory system	3
784	Symptoms referable to upper gastrointestinal tract	2
785	Symptoms referable to abdomen and lower gastrointestinal tract	1
788	Other general symptoms	12
792	Uremia	6
794	Senility without mention of psychosis	20
795	Sudden death (cause unknown)	246
796	Other ill-defined and unknown causes of morbidity and mortality	155
	E XVII. ACCIDENTS, POISONINGS, AND VIOLENCE (EXTERNAL CAUSE) (E800-E999)	
E805	Hit by rolling stock	8
E810	Motor vehicle traffic accident involving collision with train	17
E812	Motor vehicle traffic accident involving collision with another motor vehicle	817
E813	Motor vehicle traffic accident involving collision with other vehicle	45
E814	Motor vehicle traffic accident involving collision with pedestrian	349
E815	Other motor vehicle traffic accident involving collision	186
E816	Noncollision motor vehicle traffic accident due to loss of control	121
E818	Other noncollision motor vehicle traffic accident	39
E819	Motor vehicle traffic accident of unspecified nature	166
E820	Motor vehicle nontraffic accident involving collision with moving object	14
E821	Motor vehicle nontraffic accident involving collision with stationary object	2
E823	Motor vehicle nontraffic accident of other and unspecified nature	17
E827	Other nonmotor road vehicle accident	2
E830	Accident to watercraft causing submersion	13
E832	Other accidental submersion or drowning in water transport	18
E838	Other and unspecified water transport accident	2
E840	Accident to powered aircraft at take-off or landing	3
E841	Accident to powered aircraft, other and unspecified	54
E842	Accident to unpowered aircraft	1
E850	Accidental poisoning of antibiotics and other anti-infectives	1
E852	Accidental poisoning primarily systematic-hematologic	1
E853	Accidental poisoning by analgesics and antipyretics	11
E854	Accidental poisoning by other sedatives and hypnotics	4
E855	Accidental poisoning by autonomic nervous system and psychotherapeutic drugs	2
E856	Accidental poisoning by other central nervous system depressants and stimulants	2
E857	Accidental poisoning by cardiovascular drugs	3
E859	Accidental poisoning by other and unspecified drugs and medicaments	34
E860	Accidental poisoning by alcohol	7
E864	Accidental poisoning by petroleum products and other solvents	2
E865	Accidental poisoning by pesticides, fertilizers, or plant food	2
E867	Accidental poisoning by corrosives and caustics not elsewhere classifiable	1
E869	Accidental poisoning by other and unspecified solid and liquid substances	17
E870	Accidental poisoning by gas distributed by pipeline	1
E871	Accidental poisoning by liquefied petroleum gas distributed in mobile containers	2

TABLE 4.1)

NUMBER OF DEATHS BY CAUSE
MICHIGAN RESIDENTS, 1977 (continued)

ICDA LIST NUMBER	CAUSE OF DEATH	NUMBER
E871	Accidental poisoning by motor vehicle exhaust gas	14
E873	Accidental poisoning by other carbon monoxide	23
E876	Accidental poisoning by other gases and vapors	9
E880	Fall on or from stairs or steps	76
E881	Fall on or from ladders or scaffolding	17
E882	Fall from or out of building or other structure	24
E884	Fall into hole or other opening in surface	5
E884	Other fall from one level to another	16
E885	Fall on same level from slipping, stumbling, or tripping	15
E887	Other and unspecified fall	191
E890	Accident caused by conflagration in private dwelling	240
E891	Accident caused by conflagration in other building or structure	20
E892	Accident caused by conflagration not in building or structure	2
E893	Accident caused by ignition of clothing	5
E894	Accident caused by ignition of highly inflammable material	1
E895	Accident caused by controlled fire in private dwelling	4
E898	Accident caused by other specified fire or flames	14
E899	Accident caused by unspecified fire	17
E900	Excessive heat	8
E901	Excessive cold	31
E904	Hunger, thirst, exposure, and neglect	16
E906	Other accidents caused by animals	4
E907	Lightning	2
E908	Cataclysm	1
E910	Accidental drowning and submersion	238
E911	Inhalation and ingestion of food causing obstruction or suffocation	57
E912	Inhalation and ingestion of other object causing obstruction or suffocation	48
E913	Accidental mechanical suffocation	28
E916	Struck accidentally by falling object	43
E917	Striking against or struck accidentally by objects	31
E918	Caught accidentally in or between objects	18
E919	Overexertion and strenuous movements	1
E920	Accidents caused by cutting or piercing instruments	5
E922	Accident caused by firearm missiles	60
E923	Accident caused by explosive material	16
E924	Accident caused by hot substance, corrosive liquid, and steam	1
E925	Accident caused by electric current	55
E927	Vehicle accidents not elsewhere classifiable	20
E928	Machinery accidents not elsewhere classifiable	21
E929	Other and unspecified accidents	44
E930	Complications and misadventures in operative therapeutic procedures	18
E931	Complications and misadventures in other and unspecified therapeutic procedures	16
E932	Complications and misadventures in diagnostic procedures	9
E933	Complications and misadventures in other prophylactic procedures	1
E940	Late effect of motor vehicle accident	7
E941	Late effect of accidental fall	5
E949	Late effect of other accident	11
E947	Late effect of surgical operation	2
E949	Late effect of other surgical and medical procedures	1
E950	Suicide and self-inflicted poisoning by solid or liquid substances	161
E951	Suicide and self-inflicted poisoning by gases in domestic use	1
E952	Suicide and self-inflicted poisoning by other gases	169
E953	Suicide and self-inflicted injury by hanging, strangulation, and suffocation	190
E954	Suicide and self-inflicted injury by submersion (drowning)	19
E955	Suicide and self-inflicted injury by firearms and explosives	681
E956	Suicide and self-inflicted injury by cutting and piercing instruments	12
E957	Suicide and self-inflicted injury by jumping from high place	26
E958	Suicide and self-inflicted injury by other and unspecified means	14
E959	Late effect of self-inflicted injury	1
E960	Fight, brawl, or rape	4
E962	Assault by poisoning	1
E963	Assault by hanging and strangulation	55
E964	Assault by submersion (drowning)	3
E965	Assault by firearms and explosives	611
E966	Assault by cutting and piercing instruments	149
E968	Assault by other and unspecified means	94
E969	Late effect of injury purposely inflicted by other person	1
E970	Injury due to legal intervention by firearms	24
E980	Poisoning by solid or liquid substances, undetermined whether accidentally or purposely inflicted	50
E982	Poisoning by other gases, undetermined whether accidentally or purposely inflicted	20
E983	Hanging strangulation undetermined	4
E984	Submersion (drowning), undetermined whether accidentally or purposely inflicted	19
E985	Injury by firearms and explosives, undetermined whether accidentally or purposely inflicted	29
E986	Injury by cutting and piercing instruments, undetermined whether accidentally or purposely inflicted	1
E987	Falling from high places undetermined	1
E988	Injury by other and unspecified means, undetermined whether accidentally or purposely inflicted	17
E989	Late effect of injury undetermined	2
	TOTAL	74,144

TABLE 4.16—Population by Age and Sex,[1] Michigan Residents, 1977

AGE	TOTAL	PERCENT	MALES	PERCENT	FEMALES	PERCENT
0-4	700,558	7.67	358,074	7.97	342,484	7.39
5-9	877,384	9.61	447,621	9.96	429,763	9.27
10-14	946,899	10.37	481,296	10.71	465,603	10.05
15-19	945,088	10.35	470,546	10.47	474,542	10.24
20-24	755,635	8.28	365,156	8.12	390,479	8.43
25-29	579,016	6.34	246,767	5.49	332,249	7.17
30-34	676,041	7.41	348,332	7.75	327,709	7.07
35-39	515,754	5.65	278,991	6.21	236,763	5.11
40-44	390,629	4.28	206,633	4.60	183,996	3.97
45-49	472,161	5.17	242,072	5.39	230,089	4.97
50-54	523,826	5.74	256,758	5.71	267,068	5.76
55-59	474,746	5.20	228,021	5.07	246,725	5.32
60-64	388,381	4.25	187,243	4.17	201,138	4.34
65-69	285,323	3.13	133,488	2.97	151,835	3.28
70-74	207,194	2.27	90,127	2.00	117,067	2.53
75-79	166,914	1.83	67,187	1.49	99,727	2.15
80-84	141,162	1.55	56,613	1.26	84,549	1.82
85 & Over	82,289	0.90	30,134	0.67	52,155	1.13
Total	9,129,000	100.00	4,495,059	100.01	4,633,941	100.00

[1]Estimates were developed from the total state population provisional estimate for 7-1-77 as contained in: Population Estimates, Current Population Reports, series P-26, No. 77-22 USDC, SESA, USGPO, May, 1977, and from projected population subgroup proportions as developed by Department of Management and Budget, Bureau of Budget.

TABLE 4.17

POPULATION CHANGES BY COUNTY
MICHIGAN RESIDENTS, 1977

Area	Population Estimates July 1, 1967	Population Estimates July 1, 1977	Percent Change	Natural Increase	Estimated Net Migration
STATE	8,615,000	9,129,000	6.0	734,176	-220,000
Alcona	5,400	8,900	64.8	-81	3,600
Alger	8,300	9,800	18.1	248	1,300
Allegan	59,500	73,800	24.0	6,133	8,200
Alpena	30,000	33,600	12.0	2,283	1,300
Antrim	10,200	15,800	54.9	505	5,100
Arenac	9,900	13,600	37.4	621	3,100
Baraga	7,900	8,400	6.3	259	200
Barry	30,400	42,200	38.8	2,711	9,100
Bay	114,100	120,200	5.3	10,261	-4,100
Benzie	8,100	10,500	29.6	124	2,300
Berrien	166,500	169,200	1.6	15,131	-12,400
Branch	33,800	37,600	11.2	2,214	1,600
Calhoun	148,400	139,800	-5.5	10,675	-17,300
Cass	36,200	44,800	23.8	3,048	5,600
Charlevoix	16,600	19,500	17.5	889	2,000
Cheboygan	14,900	20,300	36.2	1,120	4,300
Chippewa	32,400	36,800	13.6	4,149	300
Clare	13,200	22,900	72.7	536	9,100
Clinton	43,100	54,500	26.5	5,193	6,200
Crawford	5,900	9,000	52.5	337	2,800
Delta	33,800	40,100	18.6	1,795	4,500
Dickinson	24,100	25,400	5.4	100	1,200
Eaton	59,100	79,600	34.7	6,214	14,300
Emmet	17,300	21,300	23.1	1,060	2,900
Genesee	433,400	444,900	2.7	50,256	-38,800
Gladwin	10,600	17,200	62.3	641	6,000
Gogebic	20,800	20,300	-2.4	-564	100
Grand Traverse	39,600	46,600	17.7	3,136	3,900
Gratiot	38,700	39,700	2.6	3,475	-2,500
Hillsdale	35,400	40,600	14.7	2,527	2,700
Houghton	33,300	37,000	11.1	183	3,500
Huron	34,400	36,600	6.4	1,675	500
Ingham	249,500	272,000	9.0	29,917	-7,400
Ionia	45,300	49,000	8.2	4,203	-500
Iosco	19,800	30,600	54.5	2,936	7,900
Iron	14,300	14,500	1.4	-823	1,000
Isabella	36,100	51,700	43.2	4,254	11,300
Jackson	141,400	149,900	6.0	10,579	-2,100
Kalamazoo	187,300	206,200	10.1	17,500	1,400
Kalkaska	5,000	11,500	130.0	379	6,100
Kent	403,100	429,500	6.5	35,616	-9,200
Keweenaw	2,300	2,600	13.0	-93	400
Lake	4,300	7,100	65.1	-207	3,000
Lapeer	48,700	64,500	32.4	5,593	10,200
Leelanau	10,000	13,100	31.0	318	2,800
Lenawee	81,700	85,400	4.5	7,363	-3,700
Livingston	46,900	86,200	83.8	5,684	33,600
Luce	7,200	7,200	-	219	-200
Mackinac	9,600	10,800	12.5	389	800
Macomb	598,700	686,000	15.0	66,010	23,300
Manistee	19,500	21,800	11.8	288	2,000
Marquette	61,500	73,200	19.0	6,643	5,100
Mason	21,900	25,200	15.1	669	2,600
Mecosta	23,500	34,200	45.5	2,215	8,500
Menominee	23,400	26,100	11.5	478	2,200
Midland	59,300	69,600	17.4	7,885	2,400
Missaukee	6,200	9,400	51.6	382	2,800
Monroe	112,000	129,100	15.3	11,510	5,600
Montcalm	41,000	46,000	12.2	3,005	2,000
Montmorency	4,400	7,300	65.9	13	2,900
Muskegon	154,800	158,100	2.1	13,061	-9,800
Newaygo	25,500	32,200	26.3	1,733	5,000
Oakland	838,500	904,200	17.4	80,573	65,100
Oceana	16,100	21,000	30.4	1,353	3,500
Ogemaw	9,600	14,900	55.2	191	5,100
Ontonagon	10,900	11,100	1.8	444	-200
Osceola	13,000	18,500	23.3	953	2,500
Oscoda	3,800	6,400	68.4	-91	2,700
Otsego	9,800	14,400	46.9	1,055	3,500
Ottawa	114,500	146,100	27.6	13,465	18,100
Presque Isle	12,400	14,000	12.9	654	900
Roscommon	8,100	15,700	93.8	-258	7,900
Saginaw	215,400	226,700	5.2	23,381	-12,100
St. Clair	114,000	131,600	15.4	8,788	8,800
St. Joseph	45,000	50,900	13.1	3,678	2,200
Sanilac	32,900	38,800	17.9	1,921	4,000
Schoolcraft	7,600	8,900	17.1	147	1,200
Shiawassee	60,800	69,500	14.3	6,583	2,100
Tuscola	46,800	54,100	15.6	4,206	3,100
Van Buren	54,200	61,800	14.0	4,147	3,500
Washtenaw	208,000	250,200	20.3	26,277	15,900
Wayne	2,736,800	2,417,700	-11.7	180,949	-500,000
Wexford	19,300	22,400	16.1	1,245	1,900
Not Stated			-	-40	

NOTE: County totals rounded to nearest hundred and State totals rounded to nearest thousand. Subtotals may not add to totals due to rounding.

TABLE 4.18—Abridged Life Table, Michigan Residents, 1977

AGE	NQX(1)[1]	LX(2)[1]	NDX(3)[1]	NLX(4)[1]	TX(5)[1]	EX(6)[1]
0-1	0.01460	100,000	1,460	98,680	7,269,394	72.7
1-5	0.00247	98,540	243	393,570	7,170,714	72.8
5-10	0.00142	98,297	139	491,103	6,777,144	68.9
10-15	0.00167	98,158	163	490,455	6,286,041	64.0
15-20	0.00498	97,995	487	488,870	5,795,585	59.1
20-25	0.00725	97,508	707	485,840	5,306,716	54.4
25-30	0.00847	96,801	819	481,938	4,820,875	49.8
30-35	0.00643	95,982	617	478,382	4,338,937	45.2
35-40	0.00942	95,365	898	474,794	3,860,555	40.5
40-45	0.01749	94,467	1,652	468,491	3,385,761	35.8
45-50	0.02448	92,815	2,272	458,728	2,917,269	31.4
50-55	0.03582	90,543	3,243	445,087	2,458,542	27.2
55-60	0.05231	87,300	4,566	425,848	2,013,455	23.1
60-65	0.08344	82,734	6,903	397,520	1,587,606	19.2
65-70	0.13033	75,831	9,883	355,703	1,190,086	15.7
70-75	0.19596	65,948	12,923	298,056	834,383	12.7
75-80	0.24262	53,025	12,865	232,661	536,328	10.1
80-85	0.28552	40,160	11,467	171,674	303,666	7.6
85+	1.00000	28,694	28,694	131,992	131,992	4.6

[1]Definitions of life table values are contained in the Technical Notes.

TABLE 4.19—Abridged Life Table for Males, Michigan Residents, 1977

AGE	NQX(1)[1]	LX(2)[1]	NDX(3)[1]	NLX(4)[1]	TX(5)[1]	EX(6)[1]
0-1	0.01630	100,000	1,630	98,531	6,925,303	69.3
1-5	0.00262	98,370	258	392,855	6,826,772	69.4
5-10	0.00151	98,112	148	490,156	6,433,916	65.6
10-15	0.00222	97,965	217	489,397	5,943,761	60.7
15-20	0.00720	97,748	703	487,167	5,454,363	55.8
20-25	0.01141	97,045	1,106	482,593	4,967,196	51.2
25-30	0.01407	95,938	1,349	476,252	4,484,603	46.7
30-35	0.00834	94,589	788	470,910	4,008,351	42.4
35-40	0.01112	93,801	1,042	466,624	3,537,441	37.7
40-45	0.02022	92,758	1,875	459,445	3,070,817	33.1
45-50	0.02943	90,884	2,674	448,203	2,611,372	28.7
50-55	0.04687	88,209	4,134	431,367	2,163,169	24.5
55-60	0.06924	84,075	5,821	406,786	1,731,802	20.6
60-65	0.11177	78,255	8,746	370,664	1,325,016	16.9
65-70	0.17042	69,509	11,846	319,236	954,352	13.7
70-75	0.26037	57,663	15,014	251,079	635,117	11.0
75-80	0.31118	42,650	13,272	178,936	384,038	9.0
80-85	0.32596	29,378	9,576	121,933	205,102	7.0
85+	1.00000	19,802	19,802	83,169	83,169	4.2

[1] IBID.

TABLE 4.20—Abridged Life Table for Females, Michigan Residents, 1977

AGE	NQX(1)[1]	LX(2)[1]	NDX(3)[1]	NLX(4)[1]	TX(5)[1]	EX(6)[1]
0-1	0.01282	100,000	1,282	98,837	7,630,369	76.3
1-5	0.00231	98,718	227	394,318	7,531,532	76.3
5-10	0.00132	98,490	129	492,096	7,137,214	72.5
10-15	0.00110	98,361	108	491,565	6,645,118	67.6
15-20	0.00277	98,253	272	490,633	6,153,553	62.6
20-25	0.00335	97,981	328	489,117	5,662,920	57.8
25-30	0.00429	97,653	418	487,242	5,173,803	53.0
30-35	0.00441	97,235	428	485,169	4,686,562	48.2
35-40	0.00741	96,807	717	482,443	4,201,393	43.4
40-45	0.01442	96,090	1,385	477,218	3,718,950	38.7
45-50	0.01925	94,705	1,823	469,164	3,241,733	34.2
50-55	0.02509	92,882	2,330	458,891	2,772,569	29.9
55-60	0.03642	90,552	3,298	445,053	2,313,678	25.6
60-65	0.05632	87,254	4,914	424,905	1,868,624	21.4
65-70	0.09365	82,340	7,710	393,623	1,443,719	17.5
70-75	0.14294	74,630	10,667	347,443	1,050,096	14.1
75-80	0.19274	63,962	12,328	289,534	702,653	11.0
80-85	0.24591	51,634	13,265	225,110	413,119	8.0
85+	1.00000	38,369	38,369	188,009	188,009	4.9

[1] IBID.

TABLE 4.21—Abridged Life Table for Whites, Michigan Residents, 1977

AGE	NQX(1)[1]	LX(2)[1]	NDX(3)[1]	NLX(4)[1]	TX(5)[1]	EX(6)[1]
0-1	0.01258	100,000	1,258	98,862	7,345,799	73.5
1-5	0.00219	98,742	216	394,447	7,246,937	73.4
5-10	0.00130	98,526	127	492,279	6,852,490	69.6
10-15	0.00163	98,398	160	491,670	6,360,211	64.6
15-20	0.00508	98,238	499	490,044	5,868,541	59.7
20-25	0.00647	97,740	632	487,156	5,378,497	55.0
25-30	0.00700	97,107	680	483,807	4,891,341	50.4
30-35	0.00503	96,428	485	480,939	4,407,534	45.7
35-40	0.00768	95,943	737	478,065	3,926,595	40.9
40-45	0.01470	95,206	1,399	472,809	3,448,530	36.2
45-50	0.02186	93,808	2,050	464,250	2,975,720	31.7
50-55	0.03280	91,758	3,009	451,742	2,511,471	27.4
55-60	0.04880	88,749	4,331	433,714	2,059,728	23.2
60-65	0.08095	84,418	6,833	406,200	1,626,014	19.3
65-70	0.12963	77,585	10,057	364,113	1,219,814	15.7
70-75	0.19594	67,527	13,231	305,165	855,702	12.7
75-80	0.23879	54,297	12,965	238,797	550,536	10.1
80-85	0.28843	41,332	11,921	176,451	311,739	7.5
85+	1.00000	29,410	29,410	135,288	135,288	4.6

[1] IBID.

TABLE 4.22—Abridged Life Table for White Males, Michigan Residents, 1977

AGE	NQX(1)[1]	LX(2)[1]	NDX(3)[1]	NLX(4)[1]	TX(5)[1]	EX(6)[1]
0-1	0.01396	100,000	1,396	98,741	7,007,493	70.1
1-5	0.00221	98,604	218	393,895	6,908,752	70.1
5-10	0.00136	98,386	133	491,565	6,514,857	66.2
10-15	0.00214	98,253	210	490,864	6,023,292	61.3
15-20	0.00732	98,044	717	488,590	5,532,429	56.4
20-25	0.01031	97,326	1,003	484,211	5,043,839	51.8
25-30	0.01185	96,323	1,140	478,679	4,559,627	47.3
30-35	0.00625	95,183	594	474,366	4,080,948	42.9
35-40	0.00894	94,589	845	471,034	3,606,582	38.1
40-45	0.01677	93,744	1,572	465,124	3,135,548	33.4
45-50	0.02662	92,172	2,453	455,208	2,670,424	29.0
50-55	0.04323	89,719	3,878	439,552	2,215,216	24.7
55-60	0.06505	85,841	5,584	416,267	1,775,664	20.7
60-65	0.10944	80,257	8,783	380,709	1,359,397	16.9
65-70	0.17082	71,474	12,209	328,275	978,688	13.7
70-75	0.26368	59,266	15,627	257,526	650,413	11.0
75-80	0.30893	43,639	13,481	183,315	392,887	9.0
80-85	0.33099	30,158	9,982	124,833	209,572	6.9
85+	1.00000	20,176	20,176	84,738	84,738	4.2

[1] IBID.

TABLE 4.23—Abridged Life Table for White Females, Michigan Residents, 1977

AGE	NQX(1)[1]	LX(2)[1]	NDX(3)[1]	NLX(4)[1]	TX(5)[1]	EX(6)[1]
0-1	0.01112	100,000	1,112	98,991	7,698,044	77.0
1-5	0.00217	98,888	214	395,033	7,599,053	76.8
5-10	0.00124	98,674	122	493,035	7,204,020	73.0
10-15	0.00111	98,552	108	492,523	6,710,985	68.1
15-20	0.00285	98,444	280	491,557	6,218,462	63.2
20-25	0.00292	98,164	286	490,116	5,726,906	58.3
25-30	0.00337	97,878	329	488,584	5,236,789	53.5
30-35	0.00371	97,549	361	486,899	4,748,205	48.7
35-40	0.00618	97,188	600	484,612	4,261,305	43.8
40-45	0.01235	96,587	1,193	480,167	3,776,694	39.1
45-50	0.01689	95,395	1,611	473,141	3,296,527	34.6
50-55	0.02267	93,794	2,125	463,912	2,823,386	30.1
55-60	0.03359	91,659	3,078	451,145	2,359,474	25.7
60-65	0.05368	88,580	4,755	431,985	1,908,330	21.5
65-70	0.09230	83,826	7,737	401,029	1,476,345	17.6
70-75	0.14096	76,089	10,725	354,581	1,075,316	14.1
75-80	0.18814	65,364	12,297	296,700	720,734	11.0
80-85	0.25853	53,067	13,719	231,230	424,035	8.0
85+	1.00000	39,348	39,348	192,805	192,805	4.9

[1] IBID.

TABLE 4.24—Abridged Life Table for All Other, Michigan Residents, 1977

AGE	NQX(1)[1]	LX(2)[1]	NDX(3)[1]	NLX(4)[1]	TX(5)[1]	EX(6)[1]
0-1	0.02376	100,000	2,376	97,858	6,790,183	67.9
1-5	0.00386	97,624	377	389,563	6,692,326	68.6
5-10	0.00204	97,247	198	485,690	6,302,763	64.8
10-15	0.00187	97,049	181	484,838	5,817,073	59.9
15-20	0.00441	96,868	427	483,468	5,332,235	55.0
20-25	0.01171	96,441	1,128	479,654	4,848,767	50.3
25-30	0.01815	95,312	1,730	472,323	4,369,114	45.8
30-35	0.01647	93,582	1,541	464,113	3,896,791	41.6
35-40	0.02158	92,041	1,986	455,651	3,432,678	37.3
40-45	0.03901	90,055	3,513	441,890	2,977,027	33.1
45-50	0.04494	86,542	3,889	423,276	2,535,137	29.3
50-55	0.05909	82,654	4,883	401,560	2,111,861	25.6
55-60	0.08081	77,771	6,284	373,669	1,710,301	22.0
60-65	0.10365	71,487	7,409	339,409	1,336,631	18.7
65-70	0.13551	64,077	8,683	299,400	997,222	15.6
70-75	0.19624	55,394	10,870	250,653	697,822	12.6
75-80	0.28748	44,524	12,800	189,996	447,169	10.0
80-85	0.24800	31,724	7,868	137,889	257,173	8.1
85+	1.00000	23,857	23,857	119,284	119,284	5.0

[1] IBID.

TABLE 4.25—Abridged Life Table for Other Males, Michigan Residents, 1977

AGE	NQX(1)[1]	LX(2)[1]	NDX(3)[1]	NLX(4)[1]	TX(5)[1]	EX(6)[1]
0-1	0.02724	100,000	2,724	97,553	6,413,554	64.1
1-5	0.00472	97,276	458	387,949	6,316,001	64.9
5-10	0.00226	96,818	218	483,491	5,928,052	61.2
10-15	0.00267	96,600	257	482,443	5,444,561	56.4
15-20	0.00651	96,343	627	480,442	4,962,118	51.5
20-25	0.01741	95,716	1,666	474,859	4,481,676	46.8
25-30	0.02920	94,051	2,746	463,512	4,006,816	42.6
30-35	0.02469	91,305	2,254	450,821	3,543,305	38.8
35-40	0.02717	89,051	2,419	439,588	3,092,484	34.7
40-45	0.04720	86,631	4,088	432,295	2,652,896	30.6
45-50	0.05012	82,543	4,137	402,745	2,229,602	27.0
50-55	0.07490	78,406	5,872	378,043	1,826,857	23.0
55-60	0.10280	72,534	7,456	344,580	1,448,814	20.0
60-65	0.13070	65,078	8,506	304,548	1,104,234	17.0
65-70	0.16753	56,573	9,478	259,687	799,686	14.1
70-75	0.23338	47,095	10,991	208,548	539,999	11.5
75-80	0.33566	36,104	12,119	149,255	331,452	9.2
80-85	0.26447	23,985	6,343	102,807	182,197	7.6
85+	1.00000	17,642	17,642	79,389	79,389	4.5

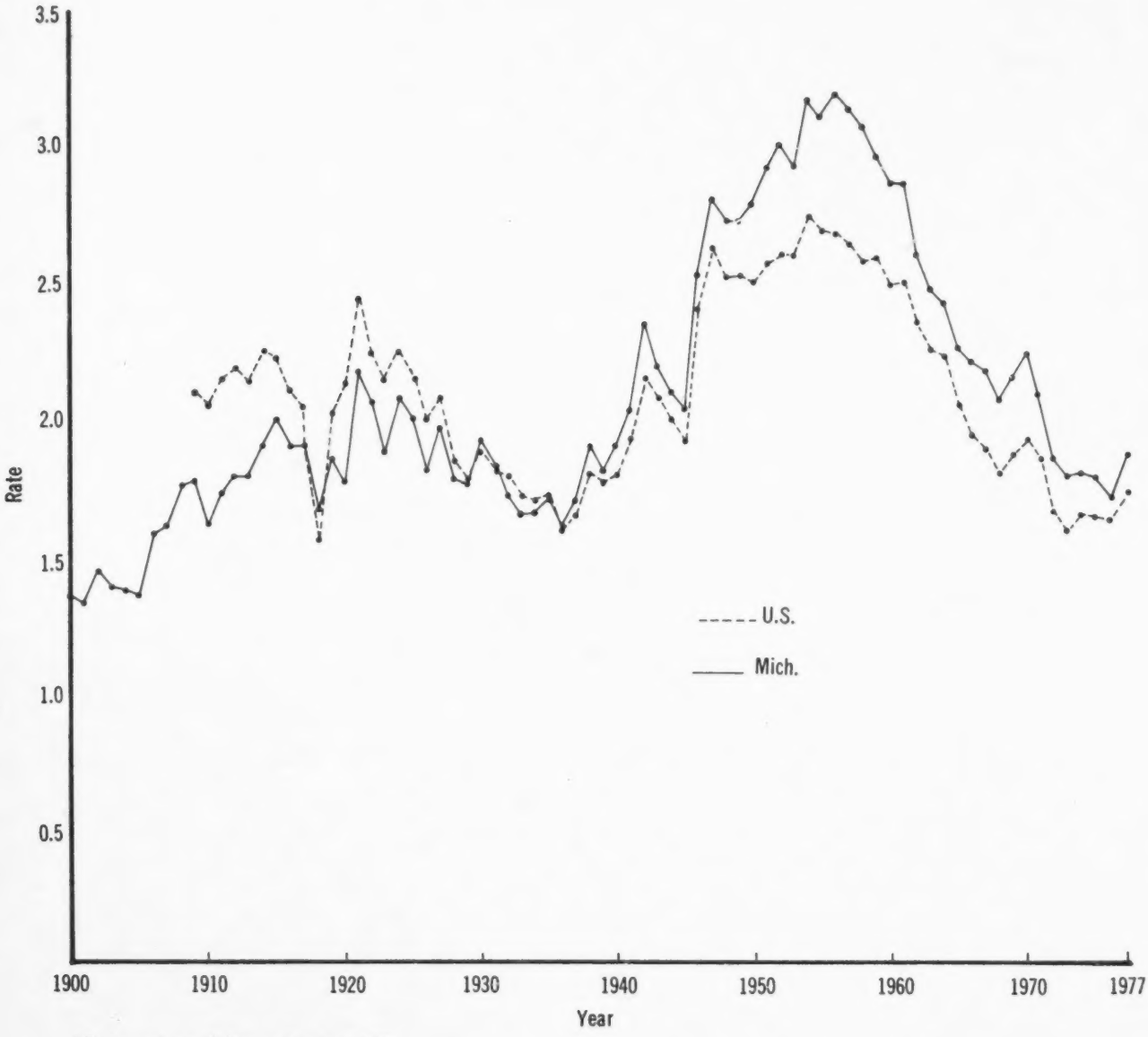
[1] IBID.

TABLE 4.26—Abridged Life Table for Other Females, Michigan Residents, 1977

AGE	NQX(1)[1]	LX(2)[1]	NDX(3)[1]	NLX(4)[1]	TX(5)[1]	EX(6)[1]
0-1	0.02031	100,000	2,031	98,161	7,195,849	72.0
1-5	0.00300	97,969	293	391,171	7,097,688	72.4
5-10	0.00178	97,676	173	487,905	6,706,517	68.7
10-15	0.00107	97,503	104	487,269	6,218,612	63.8
15-20	0.00238	97,399	231	486,519	5,731,343	58.8
20-25	0.00597	97,168	579	484,552	5,244,825	54.0
25-30	0.01024	96,589	988	480,533	4,760,273	49.3
30-35	0.00897	95,601	857	475,963	4,279,740	44.8
35-40	0.01557	94,744	1,475	470,436	3,803,778	40.1
40-45	0.03006	93,269	2,803	459,759	3,333,341	35.7
45-50	0.03885	90,465	3,514	443,749	2,873,582	31.8
50-55	0.04374	86,951	3,803	425,550	2,429,833	27.9
55-60	0.05970	83,148	4,963	403,808	2,004,282	24.1
60-65	0.07779	78,185	6,082	376,251	1,600,474	20.5
65-70	0.10409	72,104	7,505	342,664	1,224,223	17.0
70-75	0.16163	64,599	10,441	298,138	881,560	13.6
75-80	0.24907	54,158	13,489	236,886	583,421	10.8
80-85	0.23529	40,669	9,569	178,595	346,535	8.5
85+	1.00000	31,100	31,100	167,941	167,941	5.4

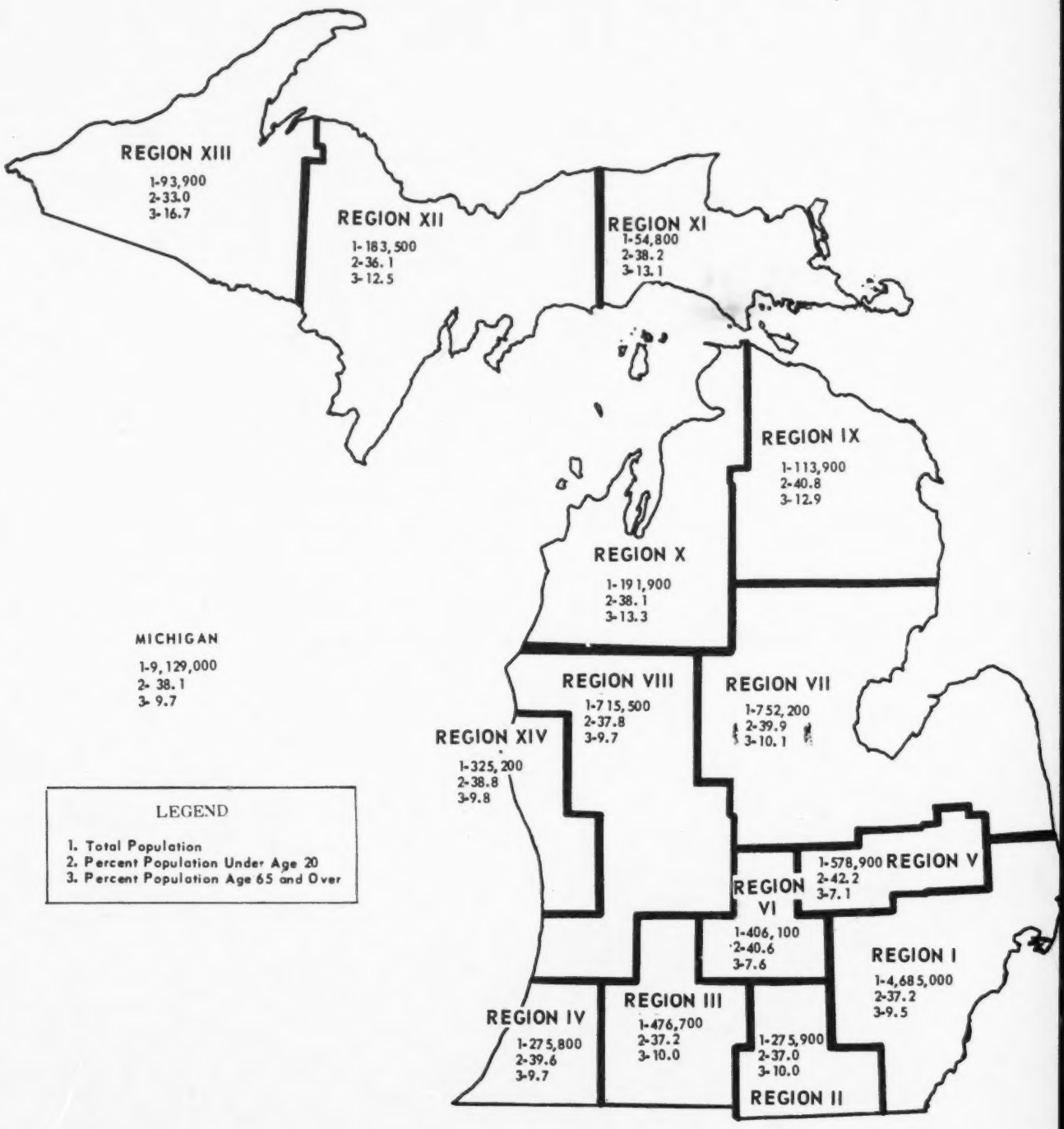
[1] IBID.

FIGURE 4.1—Rate of Natural Increase, Michigan, 1900-1977, and the United States, 1901[1]-1977[2]



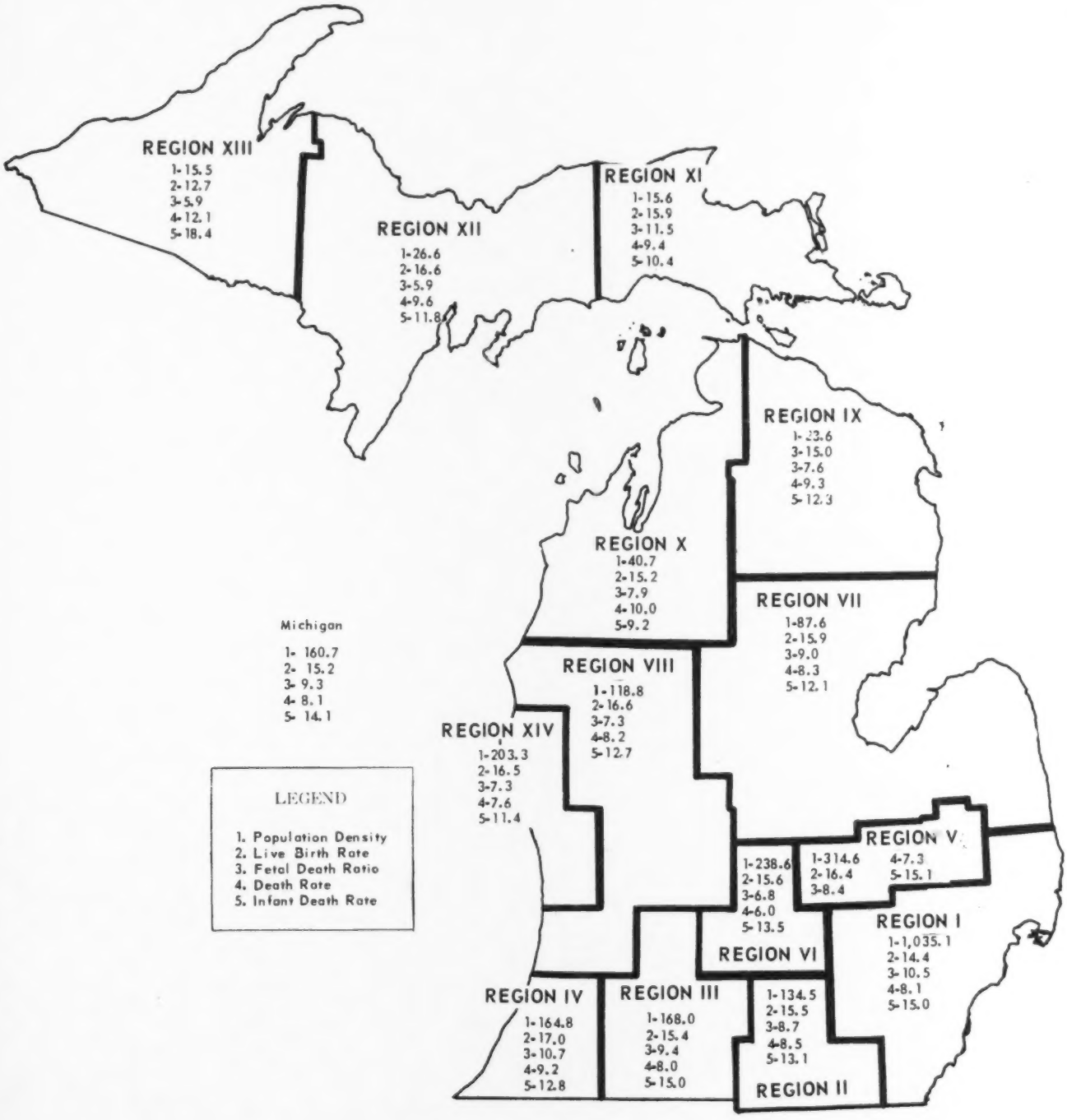
[1]Data not available prior to 1909.
[2]United States rate for 1977 is provisional.

FIGURE 4.2 Total Population, Percent Under Age 20 and Percent Age 65 and over by Region[1], Michigan, 1977



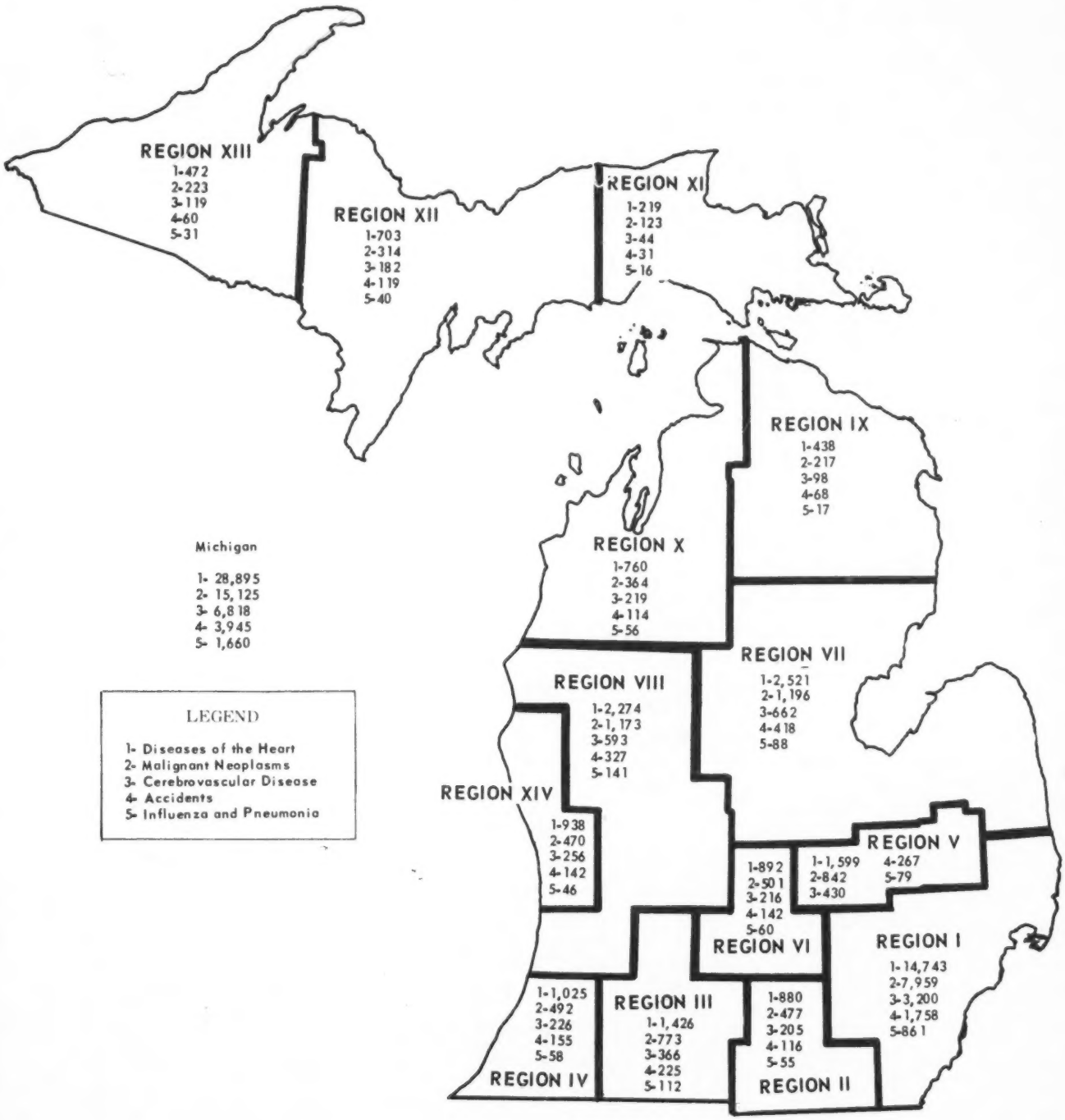
[1]State Planning and Development Regions — August, 1973

FIGURE 4.3 Population Density, Live Birth Rates, Fetal Death Ratios, Death Rates and Infant Mortality Rates by Region[1], Michigan Residents, 1977



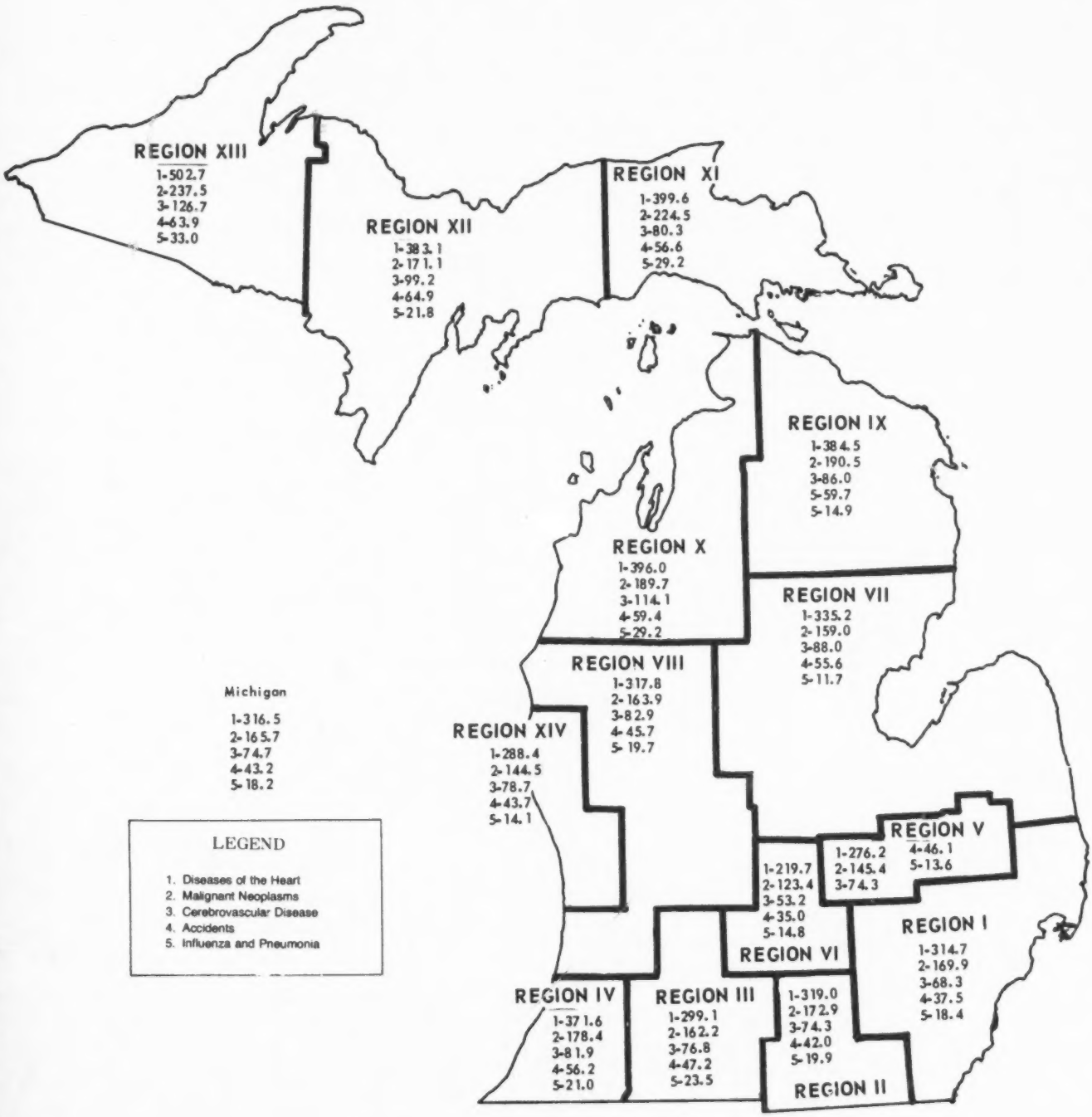
[1]State Planning and Development Regions — August, 1973

FIGURE 4.4 Leading Causes of Death; Number of Deaths by Region[1], Michigan Residents, 1977



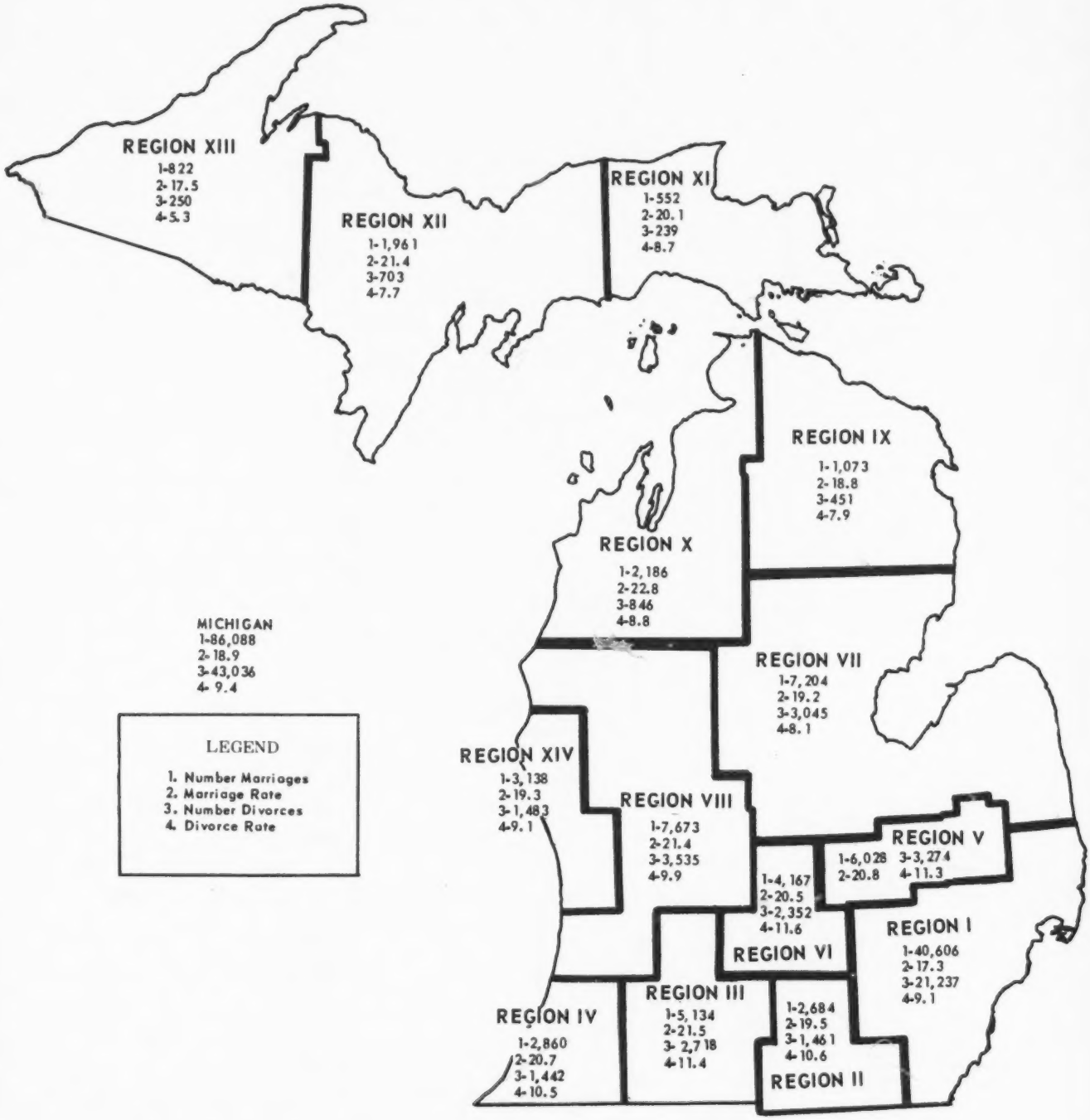
[1]State Planning and Development Regions — August, 1973

FIGURE 4.5 Leading Causes of Death; Death Rates by Region[1], Michigan Residents, 1977



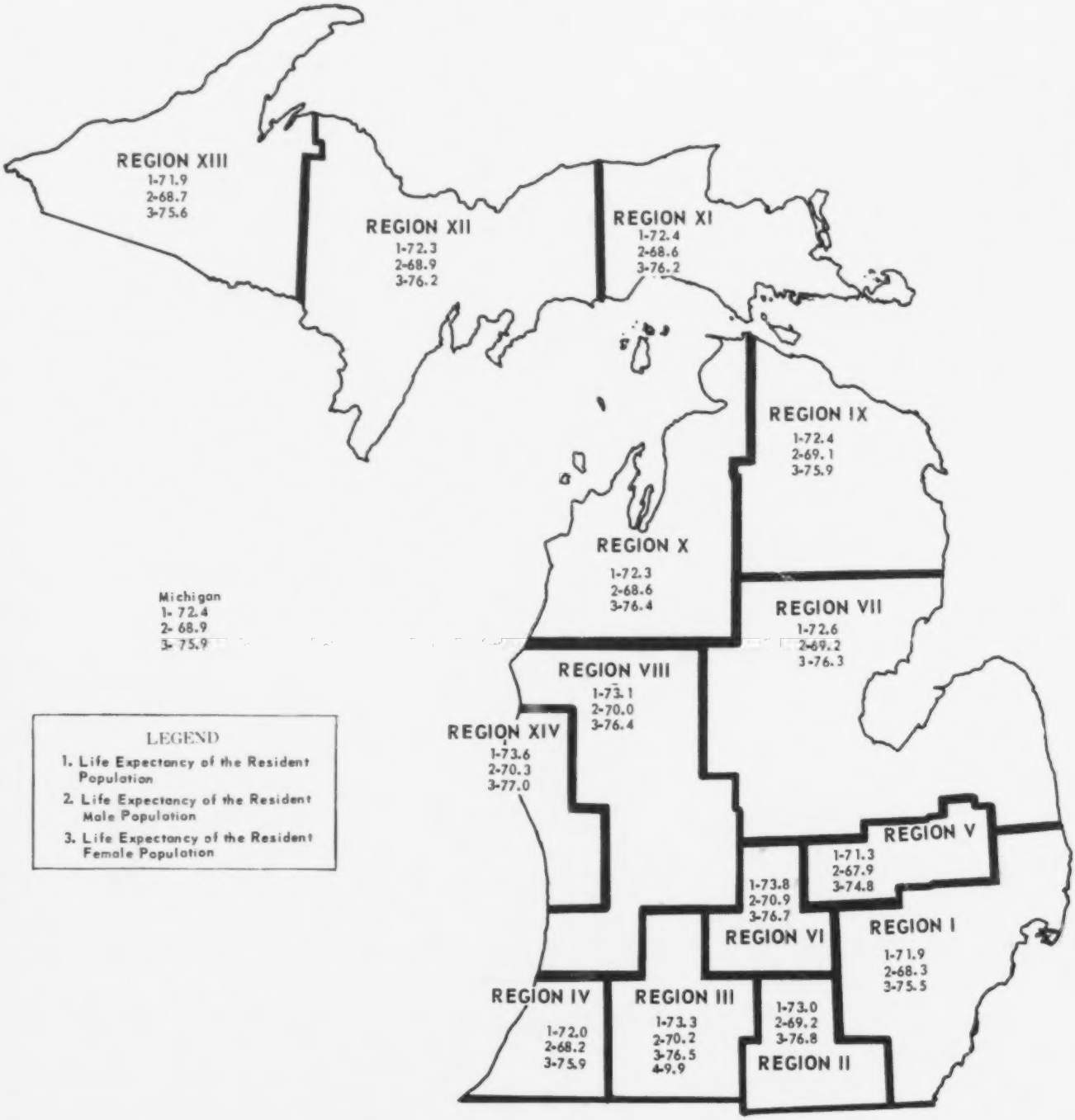
[1]State Planning and Development Regions — August, 1973

FIGURE 4.6 Marriages and Marriage Rates, Divorces and Divorce Rates by Region[1], Michigan Residents, 1977



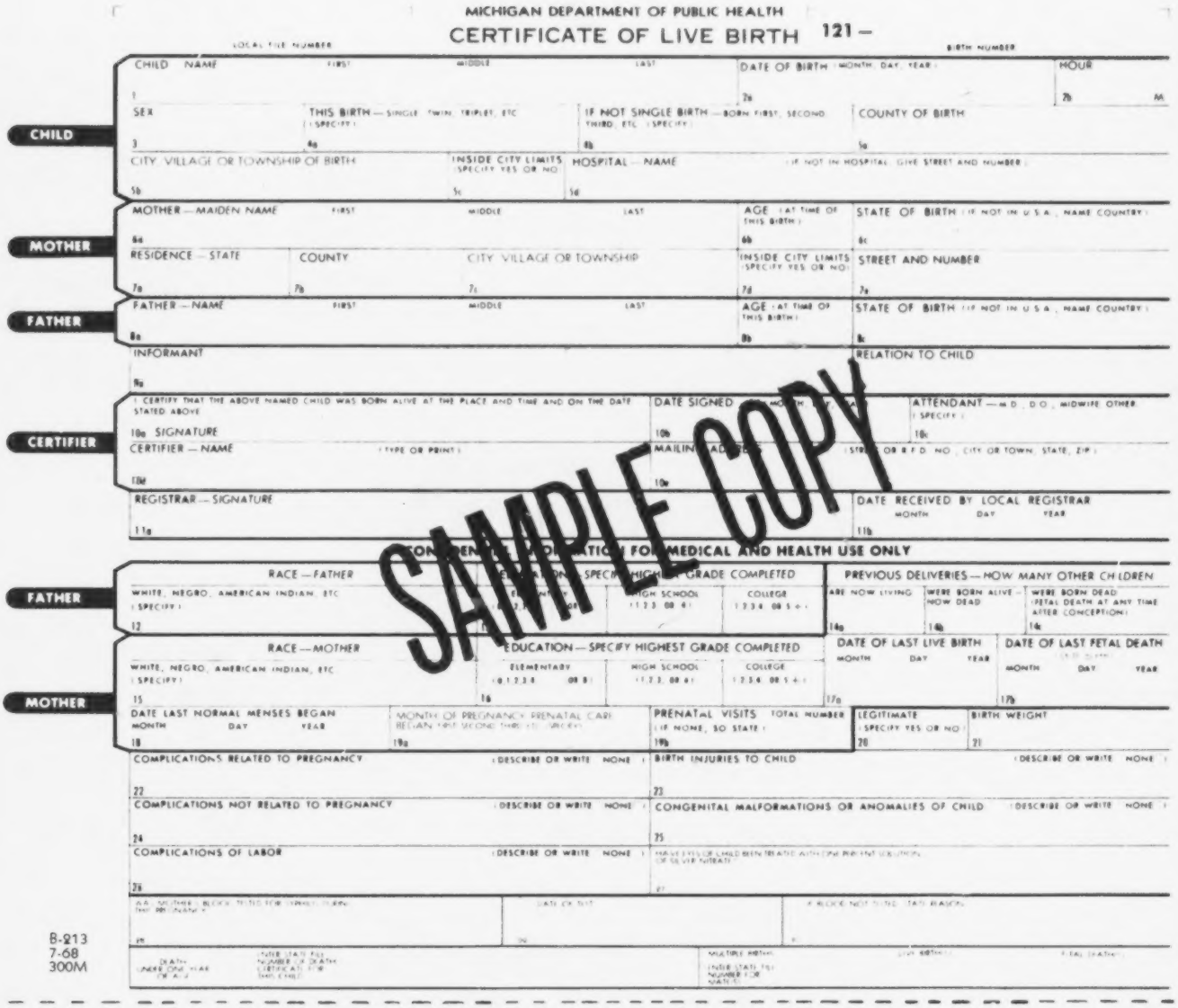
[1]State Planning and Development Regions — August, 1973

FIGURE 4.7 Life Expectancy at Birth by Sex by Region[1], Michigan Residents, 1975-1977



[1]State Planning and Development Regions — August, 1973

FIGURE 4.8


MICHIGAN DEPARTMENT OF PUBLIC HEALTH

CERTIFICATE OF LIVE BIRTH 121 –

LOCAL FILE NUMBER — BIRTH NUMBER

CHILD — NAME (FIRST, MIDDLE, LAST) — DATE OF BIRTH (MONTH, DAY, YEAR) — HOUR

SEX — THIS BIRTH — SINGLE, TWIN, TRIPLET, ETC. (SPECIFY) — IF NOT SINGLE BIRTH — BORN FIRST, SECOND, THIRD, ETC. (SPECIFY) — COUNTY OF BIRTH

CITY, VILLAGE OR TOWNSHIP OF BIRTH — INSIDE CITY LIMITS (SPECIFY YES OR NO) — HOSPITAL — NAME (IF NOT IN HOSPITAL, GIVE STREET AND NUMBER)

MOTHER — MAIDEN NAME (FIRST, MIDDLE, LAST) — AGE (AT TIME OF THIS BIRTH) — STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY)

RESIDENCE — STATE — COUNTY — CITY, VILLAGE OR TOWNSHIP — INSIDE CITY LIMITS (SPECIFY YES OR NO) — STREET AND NUMBER

FATHER — NAME (FIRST, MIDDLE, LAST) — AGE (AT TIME OF THIS BIRTH) — STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY)

INFORMANT — RELATION TO CHILD

I CERTIFY THAT THE ABOVE NAMED CHILD WAS BORN ALIVE AT THE PLACE AND TIME AND ON THE DATE STATED ABOVE — DATE SIGNED (MONTH, DAY, YEAR) — ATTENDANT — M.D., D.O., MIDWIFE, OTHER (SPECIFY)

SIGNATURE — CERTIFIER — NAME (TYPE OR PRINT) — MAILING ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP)

REGISTRAR — SIGNATURE — DATE RECEIVED BY LOCAL REGISTRAR (MONTH, DAY, YEAR)

CONFIDENTIAL INFORMATION FOR MEDICAL AND HEALTH USE ONLY

FATHER — RACE — FATHER (WHITE, NEGRO, AMERICAN INDIAN, ETC. (SPECIFY)) — EDUCATION — SPECIFY HIGHEST GRADE COMPLETED (ELEMENTARY 0 1 2 3 4 5 6 7 8; HIGH SCHOOL 1 2 3 4; COLLEGE 1 2 3 4 5+) — PREVIOUS DELIVERIES — HOW MANY OTHER CHILDREN (ARE NOW LIVING; WERE BORN ALIVE — NOW DEAD; WERE BORN DEAD (FETAL DEATH AT ANY TIME AFTER CONCEPTION))

MOTHER — RACE — MOTHER (WHITE, NEGRO, AMERICAN INDIAN, ETC. (SPECIFY)) — EDUCATION — SPECIFY HIGHEST GRADE COMPLETED (ELEMENTARY 0 1 2 3 4 5 6 7 8; HIGH SCHOOL 1 2 3 4; COLLEGE 1 2 3 4 5+) — DATE OF LAST LIVE BIRTH (MONTH, DAY, YEAR) — DATE OF LAST FETAL DEATH (MONTH, DAY, YEAR)

DATE LAST NORMAL MENSES BEGAN (MONTH, DAY, YEAR) — MONTH OF PREGNANCY PRENATAL CARE BEGAN (1ST, 2ND, 3RD, 4TH, 5TH, 6TH, 7TH, 8TH, 9TH) — PRENATAL VISITS TOTAL NUMBER (IF NONE, SO STATE) — LEGITIMATE (SPECIFY YES OR NO) — BIRTH WEIGHT

COMPLICATIONS RELATED TO PREGNANCY (DESCRIBE OR WRITE NONE) — BIRTH INJURIES TO CHILD (DESCRIBE OR WRITE NONE)

COMPLICATIONS NOT RELATED TO PREGNANCY (DESCRIBE OR WRITE NONE) — CONGENITAL MALFORMATIONS OR ANOMALIES OF CHILD (DESCRIBE OR WRITE NONE)

COMPLICATIONS OF LABOR (DESCRIBE OR WRITE NONE) — HAVE EYES OF CHILD BEEN TREATED WITH SOLUTION OF SILVER NITRATE?

A.A. MOTHER'S BLOOD TESTED FOR SYPHILIS DURING THIS PREGNANCY? — DATE OF TEST — IF BLOOD NOT TESTED, STATE REASON

DEATH UNDER ONE YEAR OF AGE — NUMBER OF DEATH CERTIFICATE FOR THIS CHILD — MULTIPLE BIRTH (SINGLE, TWIN, TRIPLET, ETC.) — LIVE BIRTH — FETAL DEATH

B-213
7-68
300M

SAMPLE COPY

DETACH INSTRUCTIONS BEFORE FILING CERTIFICATE WITH REGISTRAR

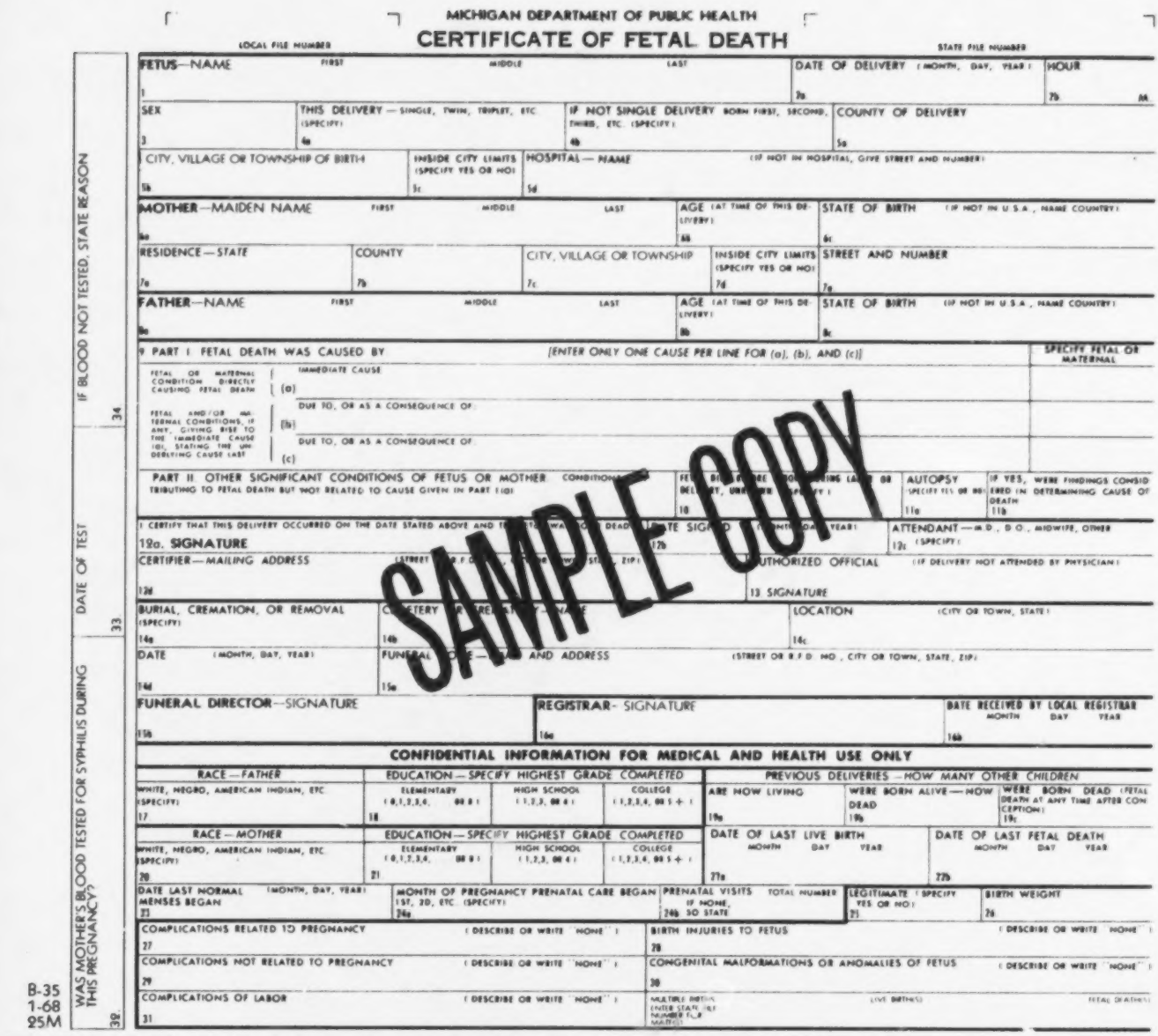
TYPE OR PRINT (EXCEPT SIGNATURES) IN BLACK INK—THIS IS A PERMANENT RECORD

Michigan Public Act 343 of 1925, as amended, requires that certificates of birth be filed with the registrar of the district in which the birth occurred within five days after the event.

Many important legal, personal, public health, and social welfare interests require complete and accurate registration of all births. Individuals need certification of the facts of birth for evidence of age, of citizenship, and of family relationship. Social and health agencies need medical and social information concerning the child and his parents for administrative and statistical purposes. In order to protect the privacy of the individual to whom this certificate applies, most of the information of the latter type has been placed in a section of the certificate labeled: "Confidential Information for Medical and Health Use Only."

In case of more than one child at birth, a SEPARATE RETURN must be made for each and the number of each in order of birth stated. Accurate recording of the residence (not mailing address) of the mother is particularly important as it is used extensively for statistical purposes.

FIGURE 4.9



MICHIGAN DEPARTMENT OF PUBLIC HEALTH

CERTIFICATE OF FETAL DEATH

LOCAL FILE NUMBER

STATE FILE NUMBER

IF BLOOD NOT TESTED, STATE REASON

DATE OF TEST

WAS MOTHER'S BLOOD TESTED FOR SYPHILIS DURING THIS PREGNANCY?

FETUS—NAME (FIRST, MIDDLE, LAST) 1

DATE OF DELIVERY (MONTH, DAY, YEAR) 2a

HOUR 2b AM

SEX 3

THIS DELIVERY — SINGLE, TWIN, TRIPLET, ETC (SPECIFY) 4a

IF NOT SINGLE DELIVERY BORN FIRST, SECOND, THIRD, ETC. (SPECIFY) 4b

COUNTY OF DELIVERY 5a

CITY, VILLAGE OR TOWNSHIP OF BIRTH 5b

INSIDE CITY LIMITS (SPECIFY YES OR NO) 5c

HOSPITAL — NAME (IF NOT IN HOSPITAL, GIVE STREET AND NUMBER) 5d

MOTHER—MAIDEN NAME (FIRST, MIDDLE, LAST) 6a

AGE (AT TIME OF THIS DELIVERY) 6b

STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY) 6c

RESIDENCE — STATE 7a

COUNTY 7b

CITY, VILLAGE OR TOWNSHIP 7c

INSIDE CITY LIMITS (SPECIFY YES OR NO) 7d

STREET AND NUMBER 7e

FATHER—NAME (FIRST, MIDDLE, LAST) 8a

AGE (AT TIME OF THIS DELIVERY) 8b

STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY) 8c

9 PART I. FETAL DEATH WAS CAUSED BY (ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c)) — SPECIFY FETAL OR MATERNAL

FETAL OR MATERNAL CONDITION DIRECTLY CAUSING FETAL DEATH — IMMEDIATE CAUSE (a)

FETAL AND/OR MATERNAL CONDITIONS, IF ANY, GIVING RISE TO THE IMMEDIATE CAUSE (a), STATING THE UNDERLYING CAUSE LAST — DUE TO, OR AS A CONSEQUENCE OF (b)

DUE TO, OR AS A CONSEQUENCE OF (c)

PART II. OTHER SIGNIFICANT CONDITIONS OF FETUS OR MOTHER CONDITIONS CONTRIBUTING TO FETAL DEATH BUT NOT RELATED TO CAUSE GIVEN IN PART I (b) 10

AUTOPSY (SPECIFY YES OR NO) 11a

IF YES, WERE FINDINGS CONSIDERED IN DETERMINING CAUSE OF DEATH 11b

I CERTIFY THAT THIS DELIVERY OCCURRED ON THE DATE STATED ABOVE AND THAT THE FETUS WAS DEAD AT THE TIME OF DELIVERY. DATE SIGNED (MONTH, DAY, YEAR)

ATTENDANT — M.D., D.O., MIDWIFE, OTHER (SPECIFY) 12c

12a. SIGNATURE 12b

CERTIFIER — MAILING ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP) 12d

AUTHORIZED OFFICIAL (IF DELIVERY NOT ATTENDED BY PHYSICIAN) 13. SIGNATURE

BURIAL, CREMATION, OR REMOVAL (SPECIFY) 14a

CEMETERY OR CREMATORY NAME 14b

LOCATION (CITY OR TOWN, STATE) 14c

DATE (MONTH, DAY, YEAR) 14d

FUNERAL DIRECTOR — NAME AND ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP) 15a

FUNERAL DIRECTOR—SIGNATURE 15b

REGISTRAR—SIGNATURE 16a

DATE RECEIVED BY LOCAL REGISTRAR (MONTH, DAY, YEAR) 16b

SAMPLE COPY

CONFIDENTIAL INFORMATION FOR MEDICAL AND HEALTH USE ONLY

RACE—FATHER (WHITE, NEGRO, AMERICAN INDIAN, ETC (SPECIFY)) 17

EDUCATION—SPECIFY HIGHEST GRADE COMPLETED — ELEMENTARY (0,1,2,3,4, OR 5) 18 — HIGH SCHOOL (1,2,3, OR 4) — COLLEGE (1,2,3,4, OR 5+)

PREVIOUS DELIVERIES—HOW MANY OTHER CHILDREN — ARE NOW LIVING 19a — WERE BORN ALIVE—NOW DEAD 19b — WERE BORN DEAD (FETAL DEATH AT ANY TIME AFTER CONCEPTION) 19c

RACE—MOTHER (WHITE, NEGRO, AMERICAN INDIAN, ETC (SPECIFY)) 20

EDUCATION—SPECIFY HIGHEST GRADE COMPLETED — ELEMENTARY (0,1,2,3,4, OR 5) 21 — HIGH SCHOOL (1,2,3, OR 4) — COLLEGE (1,2,3,4, OR 5+)

DATE OF LAST LIVE BIRTH (MONTH, DAY, YEAR) 22a

DATE OF LAST FETAL DEATH (MONTH, DAY, YEAR) 22b

DATE LAST NORMAL MENSES BEGAN (MONTH, DAY, YEAR) 23

MONTH OF PREGNANCY PRENATAL CARE BEGAN (1ST, 2D, ETC. (SPECIFY)) 24a

PRENATAL VISITS TOTAL NUMBER (IF NONE, SO STATE) 24b

LEGITIMATE (SPECIFY YES OR NO) 25

BIRTH WEIGHT 26

COMPLICATIONS RELATED TO PREGNANCY (DESCRIBE OR WRITE "NONE") 27

BIRTH INJURIES TO FETUS (DESCRIBE OR WRITE "NONE") 28

COMPLICATIONS NOT RELATED TO PREGNANCY (DESCRIBE OR WRITE "NONE") 29

CONGENITAL MALFORMATIONS OR ANOMALIES OF FETUS (DESCRIBE OR WRITE "NONE") 30

COMPLICATIONS OF LABOR (DESCRIBE OR WRITE "NONE") 31

MULTIPLE BIRTH (ENTER STATE FILE NUMBER FOR EACH MATTER) — LIVE BIRTH(S) — FETAL DEATH(S)

B-35
1-68
25M

DETACH INSTRUCTIONS BEFORE FILING CERTIFICATE WITH REGISTRAR

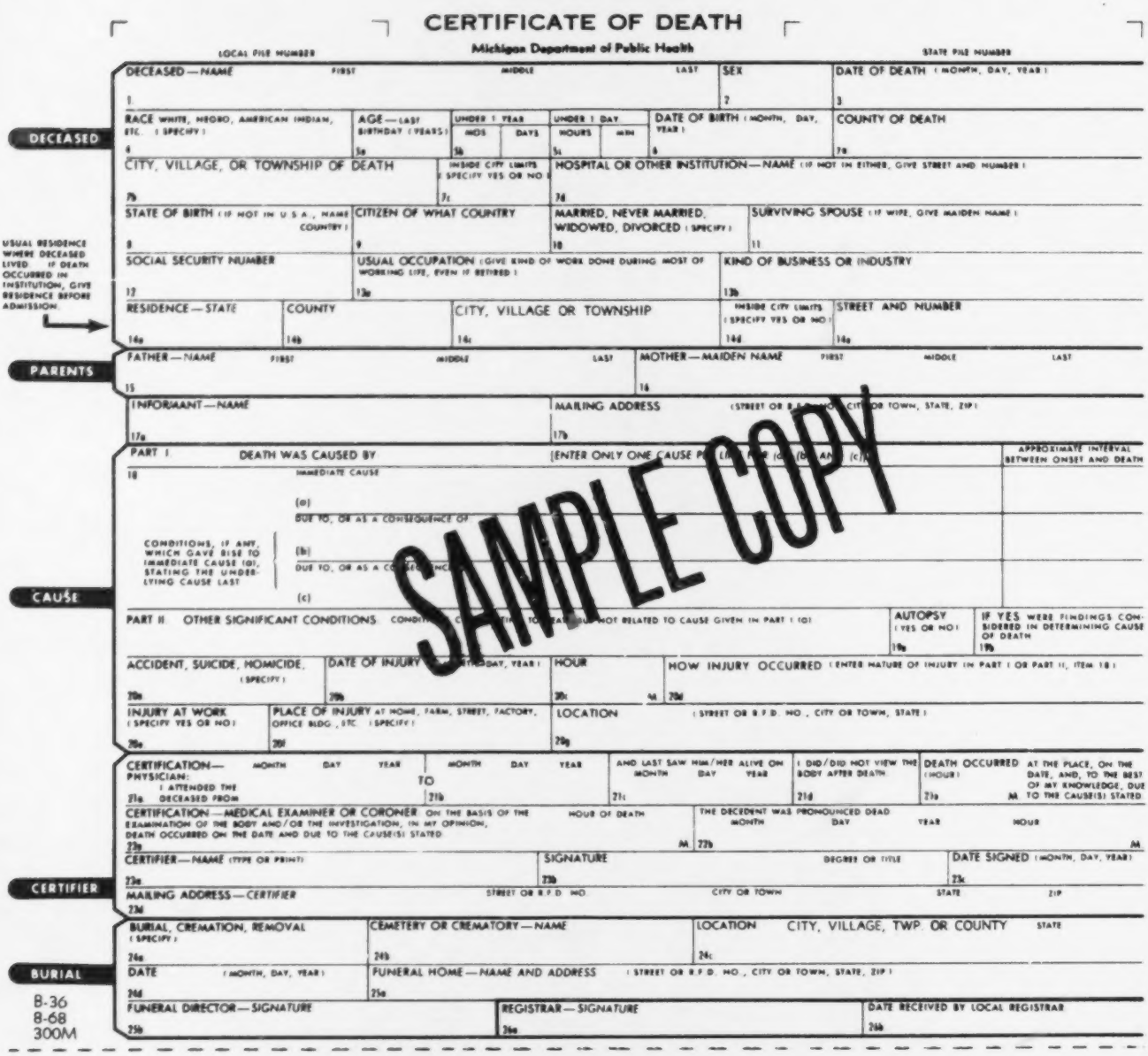
TYPE OR PRINT (EXCEPT SIGNATURES) IN BLACK INK—THIS IS A PERMANENT RECORD

Michigan Public Act 343 of 1925, as amended, requires that the attending physician, or in the absence of an attending physician, a coroner shall fill out and sign the medical certificate of fetal death (stillbirth) within 24 hours after death.

The funeral director is responsible for completing all other portions of the certificate and obtaining a burial or removal permit prior to disposing of the body, or removing from the registration district where the death occurred.

Many important legal, personal, public health, and social welfare interests require complete and accurate registration of all fetal deaths. Social and health agencies need medical and social information concerning the child and his parents for administrative and statistical purposes. In order to protect the privacy of the individual to whom this certificate applies, most of the information of this type has been placed in a section of the certificate labeled: "Confidential Information for Medical and Health Use Only."

FIGURE 4.10



CERTIFICATE OF DEATH

Michigan Department of Public Health

LOCAL FILE NUMBER

STATE FILE NUMBER

DECEASED

DECEASED—NAME (FIRST, MIDDLE, LAST) 1

SEX 2

DATE OF DEATH (MONTH, DAY, YEAR) 3

RACE (WHITE, NEGRO, AMERICAN INDIAN, ETC.) (SPECIFY) 4

AGE—LAST BIRTHDAY (YEARS) 5a

UNDER 1 YEAR (MOS. / DAYS) 5b

UNDER 1 DAY (HOURS / MIN.) 5c

DATE OF BIRTH (MONTH, DAY, YEAR) 6

COUNTY OF DEATH 7a

CITY, VILLAGE, OR TOWNSHIP OF DEATH 7b

INSIDE CITY LIMITS (SPECIFY YES OR NO) 7c

HOSPITAL OR OTHER INSTITUTION—NAME (IF NOT IN EITHER, GIVE STREET AND NUMBER) 7d

STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY) 8

CITIZEN OF WHAT COUNTRY 9

MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (SPECIFY) 10

SURVIVING SPOUSE (IF WIFE, GIVE MAIDEN NAME) 11

USUAL RESIDENCE WHERE DECEASED LIVED. IF DEATH OCCURRED IN INSTITUTION, GIVE RESIDENCE BEFORE ADMISSION.

SOCIAL SECURITY NUMBER 12

USUAL OCCUPATION (GIVE KIND OF WORK DONE DURING MOST OF WORKING LIFE, EVEN IF RETIRED) 13a

KIND OF BUSINESS OR INDUSTRY 13b

RESIDENCE—STATE 14a

COUNTY 14b

CITY, VILLAGE OR TOWNSHIP 14c

INSIDE CITY LIMITS (SPECIFY YES OR NO) 14d

STREET AND NUMBER 14e

PARENTS

FATHER—NAME (FIRST, MIDDLE, LAST) 15

MOTHER—MAIDEN NAME (FIRST, MIDDLE, LAST) 16

INFORMANT—NAME 17a

MAILING ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP) 17b

CAUSE

PART I. DEATH WAS CAUSED BY (ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c).) 18

APPROXIMATE INTERVAL BETWEEN ONSET AND DEATH

IMMEDIATE CAUSE (a)

DUE TO, OR AS A CONSEQUENCE OF (b)

CONDITIONS, IF ANY, WHICH GAVE RISE TO IMMEDIATE CAUSE (a), STATING THE UNDERLYING CAUSE LAST

DUE TO, OR AS A CONSEQUENCE OF (c)

PART II. OTHER SIGNIFICANT CONDITIONS. CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO CAUSE GIVEN IN PART I (a)

AUTOPSY (YES OR NO) 19a

IF YES, WERE FINDINGS CONSIDERED IN DETERMINING CAUSE OF DEATH 19b

ACCIDENT, SUICIDE, HOMICIDE (SPECIFY) 20a

DATE OF INJURY (MONTH, DAY, YEAR) 20b

HOUR 20c

HOW INJURY OCCURRED (ENTER NATURE OF INJURY IN PART I OR PART II, ITEM 18) 20d

INJURY AT WORK (SPECIFY YES OR NO) 20e

PLACE OF INJURY (AT HOME, FARM, STREET, FACTORY, OFFICE BLDG., ETC.) (SPECIFY) 20f

LOCATION (STREET OR R.F.D. NO., CITY OR TOWN, STATE) 20g

CERTIFIER

CERTIFICATION—PHYSICIAN: I ATTENDED THE DECEASED FROM (MONTH, DAY, YEAR) 21a TO (MONTH, DAY, YEAR) 21b

AND LAST SAW HIM/HER ALIVE ON (MONTH, DAY, YEAR) 21c

I DID/DID NOT VIEW THE BODY AFTER DEATH 21d

DEATH OCCURRED (HOUR) 21e AM/PM AT THE PLACE, ON THE DATE, AND, TO THE BEST OF MY KNOWLEDGE, DUE TO THE CAUSE(S) STATED

CERTIFICATION—MEDICAL EXAMINER OR CORONER. ON THE BASIS OF THE EXAMINATION OF THE BODY AND/OR THE INVESTIGATION, IN MY OPINION, DEATH OCCURRED ON THE DATE AND DUE TO THE CAUSE(S) STATED

HOUR OF DEATH 22a AM/PM

THE DECEDENT WAS PRONOUNCED DEAD (MONTH, DAY, YEAR, HOUR) 22b AM/PM

CERTIFIER—NAME (TYPE OR PRINT) 23a

SIGNATURE 23b

DEGREE OR TITLE

DATE SIGNED (MONTH, DAY, YEAR) 23c

MAILING ADDRESS—CERTIFIER (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP) 23d

BURIAL

BURIAL, CREMATION, REMOVAL (SPECIFY) 24a

CEMETERY OR CREMATORY—NAME 24b

LOCATION CITY, VILLAGE, TWP. OR COUNTY STATE 24c

DATE (MONTH, DAY, YEAR) 24d

FUNERAL HOME—NAME AND ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP) 25a

FUNERAL DIRECTOR—SIGNATURE 25b

REGISTRAR—SIGNATURE 26a

DATE RECEIVED BY LOCAL REGISTRAR 26b

8-36
8-68
300M

SAMPLE COPY

DETACH INSTRUCTIONS BEFORE FILING CERTIFICATE WITH REGISTRAR

TYPE OR PRINT (EXCEPT SIGNATURES) IN BLACK INK—THIS IS A PERMANENT RECORD

Michigan Public Act 343 of 1925, as amended, requires that the attending physician, or in the absence of an attending physician, a coroner shall fill out and sign the medical certificate of death within 24 hours after death.

The funeral director is responsible for completing all other portions of the certificate and obtaining a burial or removal permit prior to disposing of the body or removing from the registration district where the death occurred.

Many important legal, personal, public health and social welfare interests require complete and accurate registration of all deaths. Individuals need certification of the facts of death for insurance claims, liquidation of estates, to prove name of spouse and parents and other general legal use. Social and health agencies need information on the causes of death for purposes of planning health programs; they need information on the number of births and deaths in making population estimates; and they need birth and death statistics to measure the fertility and mortality of various racial, economic or social groups.

FIGURE 4.11

Marriage License

State File No.

COUNTY, MICHIGAN

Local File No.

To any person legally authorized to solemnize marriage in the State of Michigan,

Greeting:

Marriage must be solemnized within 30 days of date of issue in the State of Michigan between

Full name of male — and — Full name of female

Age at last birthday — Date of birth — Age at last birthday — Date of birth

Residence No. — Street — Residence No. — Street

City — State — Zip Code — City — State — Zip Code

Birthplace—city and state — Birthplace—city and state

Occupation — Occupation

Number of previous marriages — Number of times previously married

Father's full name — Father's full name

Mother's maiden name — Mother's maiden name

Maiden name (if a widow) — and whose

parent's or guardian's consent, in case she has not attained the age of eighteen years, has been filed in my office. An affidavit has been filed in this office, as provided by Public Act No. 128, Laws of 1887, as amended, by which it appears that said statements are true

In witness whereof, I have signed and sealed these presents.

this — day of — A. D. 19—

L.S.

County Clerk

Deputy County Clerk

This marriage license VOID 30 days after date of issue.

SAMPLE COPY

This space reserved for binding.

*Certificate of Marriage

Between Mr. — and M. —

I hereby certify that, in accordance with the above license, the persons herein mentioned were joined in marriage by me, at — county of — MICHIGAN, on the — day of — A. D. 19— in the presence of

Full name — of — Residence—city and state — and

Full name — of — Residence—city and state

as witnesses.

Signature of magistrate or clergyman — Official title

Post office address

THIS ORIGINAL must be returned, WITHIN TEN DAYS AFTER THE MARRIAGE, to the COUNTY CLERK, who issued the same, under severe penalty. This provision must be complied with to insure a PROPER LEGAL RECORD of the marriage.

*Except for ceremony, spaces left blank must be completed by typewriter or printed legibly. Act 96, P.A. 1956

B138

ORIGINAL*

No.....19.....

LICENSE AND CERTIFICATE OF MARRIAGE

.....

and

.....

CLERK'S OFFICE

County of.....

Received for record the.....day of

.....A. D. 19..... and recorded

in liber.....of marriages, on page.....

..... Clerk

*THIS ORIGINAL must be returned WITHIN TEN DAYS AFTER THE MARRIAGE, to the County Clerk who issued the same, under severe penalty. This provision must be complied with to insure a PROPER LEGAL RECORD of the marriage.

THE DUPLICATE must be delivered to one of the parties joined in marriage.

FIGURE 4.12

RECORD OF DIVORCE OR ANNULMENT

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
VITAL RECORDS SECTION

STATE FILE NO.

DOCKET NO.

COUNTY

HUSBAND

HUSBAND — NAME (FIRST, MIDDLE, LAST)			
1			
RESIDENCE — STATE 2a	COUNTY 2b	CITY, VILLAGE, OR TOWNSHIP 2c	INSIDE CITY LIMITS (SPECIFY YES OR NO) 2d
STREET AND NUMBER 2e		STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY) 3	DATE OF BIRTH (MONTH, DAY, YEAR) 4

WIFE

WIFE — NAME (FIRST, MIDDLE, LAST)			
5a			MAIDEN NAME 5b
RESIDENCE — STATE 6a	COUNTY 6b	CITY, VILLAGE, OR TOWNSHIP 6c	INSIDE CITY LIMITS (SPECIFY YES OR NO) 6d
STREET AND NUMBER 6e		STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY) 7	DATE OF BIRTH (MONTH, DAY, YEAR) 8

PLACE OF THIS MARRIAGE — COUNTY — STATE (IF NOT IN U.S.A., NAME COUNTRY) 9a		DATE OF THIS MARRIAGE (MONTH, DAY, YEAR) 9c	APPROXIMATE DATE COUPLE SEPARATED (MONTH, YEAR) 10
LIVING CHILDREN — TOTAL NUMBER 11a	UNDER 18 YEARS OF AGE 11b	PLAINTIFF — HUSBAND, WIFE, OTHER (SPECIFY) 12	
ATTORNEY FOR PLAINTIFF — NAME 13a		ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP) 13b	

DECREE

I CERTIFY THAT THE MARRIAGE OF THE ABOVE NAMED PERSONS WAS DISSOLVED ON: (MONTH, DAY, YEAR) 14a	TYPE OF DECREE — ABSOLUTE DIVORCE OR ANNULMENT (SPECIFY) 14b	DECREE GRANTED TO HUSBAND, WIFE, OTHER (SPECIFY) 14c
LEGAL GROUNDS FOR DECREE (SPECIFY) 14d	COUNTY OF DECREE 14e	DATE OF RECORDING (MONTH, DAY, YEAR) 14f
COURT OFFICIAL — SIGNATURE 14g	TITLE OF COURT OFFICIAL 14h	COURT — NAME 14i

CONFIDENTIAL INFORMATION

HUSBAND

NUMBER OF THIS MARRIAGE	IF PREVIOUSLY MARRIED HOW MANY ENDED BY		EDUCATION — SPECIFY HIGHEST GRADE COMPLETED		
FIRST, SECOND, ETC. (SPECIFY)	DEATH	DIVORCE OR ANNULMENT	ELEMENTARY	HIGH SCHOOL	COLLEGE
	(SPECIFY IF NONE)		(0, 1, 2, 3, 4, OR 8)	(1, 2, 3, OR 4)	(1, 2, 3, 4, OR 5 +)
15	16		17		

WIFE

NUMBER OF THIS MARRIAGE	IF PREVIOUSLY MARRIED HOW MANY ENDED BY		EDUCATION — SPECIFY HIGHEST GRADE COMPLETED		
FIRST, SECOND, ETC. (SPECIFY)	DEATH	DIVORCE OR ANNULMENT	ELEMENTARY	HIGH SCHOOL	COLLEGE
	(SPECIFY IF NONE)		(0, 1, 2, 3, 4, OR 8)	(1, 2, 3, OR 4)	(1, 2, 3, 4, OR 5 +)
18	19		20		

B-42 1/69

SAMPLE COPY

Names and Ages of All Children in Family

Name ..... Age .....

Name ..... Age .....

Name ..... Age .....

Name ..... Age .....

Name ..... Age .....

Name ..... Age .....

E R R A T A

Michigan Health Statistics, 1972-1976
(Annual Statistical Reports)

Please replace tables titled "Fetal Deaths by Number of Prenatal Visits, Michigan Residents" with the enclosed corrected tables. The last two rows (ninth month, unknown) were transposed in the printed texts. The respective table numbers for each year are:

1972	Table 1.21
1973	Table 1.25
1974	Table 1.28
1975	Table 1.30
1976	Table 1.30

Michigan Health Statistics, 1960-1976
(Annual Statistical Reports)

Please note there are two changes in Table 3.14 (page 77) - "Divorces and Annulments by Duration of Marriage, Michigan Occurrences, 1967 and 1977" in Michigan Health Statistics, 1977: (1) durations under 6 months had previously been listed as durations under one year; (2) an explanatory footnote on method of calculation has been added. These changes apply to data on duration of marriage at time of divorce or annulment previously published in Michigan Health Statistics over the years 1960-1976. More accurate Michigan data on duration of marriage at time of divorce or annulment are available in the series of National Center for Health Statistics publications, Vital Statistics of the United States, Volume III.

Office of Vital and Health Statistics
Michigan Department of Public Health
Lansing, Michigan 48909

TABLE 1.21 - Fetal Deaths by Month Prenatal Care Began and by Number of Prenatal Visits, Michigan Residents, 1972

MONTH OF PREGNANCY PRENATAL CARE BEGAN	NUMBER OF VISITS							
	TOTAL	NONE	UNDER 5	5-9	10-14	15-19	20 AND OVER	NOT STATED
TOTAL.....	1,770	263	442	418	400	63	23	161
No Care.....	263	263	-	-	-	-	-	-
First Month.....	121	-	25	29	45	8	5	9
Second Month.....	433	-	89	130	157	30	13	14
Third Month.....	359	-	80	118	123	22	1	15
Fourth Month.....	219	-	90	68	48	3	1	9
Fifth Month.....	122	-	56	44	16	-	-	6
Sixth Month.....	68	-	45	16	3	-	2	2
Seventh Month.....	38	-	27	6	2	-	1	2
Eighth Month.....	27	-	19	3	4	-	-	1
Ninth Month.....	12	-	5	1	1	-	-	5
Unknown.....	108	-	6	3	1	-	-	98

TABLE 1.25 - Fetal Deaths by Month Prenatal Care Began and by Number of Prenatal Visits, Michigan Residents, 1973

MONTH OF PREGNANCY PRENATAL CARE BEGAN	NUMBER OF VISITS							
	TOTAL	NONE	UNDER 5	5-9	10-14	15-19	20 AND OVER	NOT STATED
TOTAL.....	1,682	170	434	419	391	81	34	153
No Care.....	170	170	-	-	-	-	-	-
First Month.....	146	-	27	37	47	19	4	12
Second Month.....	465	-	88	156	161	36	16	8
Third Month.....	361	-	102	124	107	13	11	4
Fourth Month.....	177	-	75	40	47	9	1	5
Fifth Month.....	96	-	50	30	13	2	1	-
Sixth Month.....	65	-	50	8	5	-	-	2
Seventh Month.....	27	-	17	10	-	-	-	-
Eighth Month.....	19	-	12	6	-	-	-	1
Ninth Month.....	9	-	5	3	1	-	-	-
Unknown.....	147	-	8	5	10	2	1	121

TABLE 1.30 - Fetal Deaths by Month Prenatal Care Began and by Number of Prenatal Visits, Michigan Residents, 1975

MONTH OF PREGNANCY PRENATAL CARE BEGAN	NUMBER OF VISITS							
	TOTAL	NONE	UNDER 5	5-9	10-14	15-19	20 AND OVER	NOT STATED
TOTAL.....	1,373	73	225	412	271	51	28	313
No Care.....	73	73	-	-		-	-	-
First Month.....	111	-	8	39	39	10	11	4
Second Month.....	333		41	135	109	22	13	13
Third Month.....	310	-	54	131	91	14	4	16
Fourth Month.....	114	-	34	52	20	2	-	6
Fifth Month.....	69	-	35	23	7	1	-	3
Sixth Month.....	41	-	20	16	4	-	-	1
Seventh Month.....	22	-	13	7	-	-	-	2
Eighth Month.....	12	-	10	1	-	1	-	-
Ninth Month.....	9	-	6	1	1	1	-	-
Unknown.....	279	-	4	7		-	-	268

TABLE 1.28 - Fetal Deaths by Month Prenatal Care Began and by Number of Prenatal Visits, Michigan Residents, 1974

MONTH OF PREGNANCY PRENATAL CARE BEGAN	NUMBER OF VISITS							
	TOTAL	NONE	UNDER 5	5-9	10-14	15-19	20 AND OVER	NOT STATED
TOTAL.....	1,451	47	353	339	333	82	31	266
No Care.....	47	47	-	-	-	-	-	-
First Month.....	136	-	18	40	44	16	13	5
Second Month.....	389	-	91	109	133	31	13	12
Third Month.....	315	-	79	111	100	21	1	3
Fourth Month.....	148	-	58	39	32	12	4	3
Fifth Month.....	85	-	39	27	15	2	-	2
Sixth Month.....	37	-	22	6	3	-	-	6
Seventh Month.....	26	-	21	3	1	-	-	1
Eighth Month.....	16	-	13	1	1	-	-	1
Ninth Month.....	6	-	5	-	1	-	-	-
Unknown.....	246	-	7	3	3	-	-	233

TABLE 1.30 - Fetal Deaths by Month Prenatal Care Began and by Number of Prenatal Visits, Michigan Residents, 1976

MONTH OF PREGNANCY PRENATAL CARE BEGAN	NUMBER OF VISITS							
	TOTAL	NONE	UNDER 5	5-9	10-14	15-19	20 AND OVER	NOT STATED
TOTAL.....	1,271	49	218	378	260	41	17	308
No Care.....	49	49	-	-	-	-	-	-
First Month.....	95	-	5	40	34	5	6	5
Second Month.....	289	-	40	118	103	17	6	5
Third Month.....	275	-	49	129	78	12	2	5
Fourth Month.....	124	-	49	45	20	3	2	5
Fifth Month.....	73	-	32	22	14	1	1	3
Sixth Month.....	33	-	18	9	4	1	-	1
Seventh Month.....	21	-	13	5	1	1	-	1
Eighth Month.....	8	-	5	2	-	-	-	1
Ninth Month.....	8	-	3	-	3	1	-	1
Unknown.....	296	-	4	8	3	-	-	281

ERRATA

Michigan Health Statistics, 1977

(Annual Statistical Report)

Divorces and Annulments (page 76) - should read: "The number of divorces and annulments dropped slightly from 43,101 to 43,046..."

Tables 4.1 and 4.2 (pages 81-82) - The data in the column with the subheading "All Ages" is death data. It should be listed under the "Deaths" heading.

Table 4.2 (page 82) Maternal Death Rate - 1977 - should be 0.8 (per 10,000 live births).